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Guard Against Unjustifiable Price Increases

Members of Pulp and Paper Industry Assure Leon Henderson, In Charge of Price Stabilization Div. of National Defense Advisory Commission, They Will Cooperate To Avoid Runaway Markets.

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., August 7, 1940—Cooperation of individual members of the paper pulp industry to guard against unjustifiable price increases has been assured, Leon Henderson, member of the National Defense Advisory Commission in charge of the Price Stabilization Division, has announced.

"Our recent survey of prices indicated that paper and pulp offered a dangerous possibility of developing an inflationary spiral," Mr. Henderson said. "It now appears that for the time being at least this threat has been removed as the result of a lengthy discussion between representatives of seventeen of the principal producers in the industry and members of the staff of Edward R. Stettinius, Jr., head of the Defense Commission's Industrial Materials Division, and my Price Stabilization Division."

Fear of Shortages

The spot prices of paper and pulp have been rising in recent months due principally to fear of shortages which might develop from elimination of Scandinavian imports; increased export demand on this country from markets such as South America which have been shut off from foreign sources; and the possibility of extensive uses of pulp in manufacturing explosives under the defense program.

Paper and pulp have a very wide general consumer use and prices constitute an element of consideration in practically all production and distribution activities. Run-away prices in these essential items might have a serious effect over a wide range of our economy.

Mr. Stettinius' division is responsible for adequate supplies of raw materials, of which pulp is one, and it is upon an adequate supply that the country must rely principally for price stabilization. Fears of a shortage can cause the same excited price increases as actual shortages.

"Mr. Stettinius' group surveyed the industry's capacity to produce, and my group," Mr. Henderson said, "utilizing the expert services of several government agencies and outside sources, canvassed the price situation. Upon the evidence developed it was decided to discuss the matter with representatives of the industry."

Conclusions Developed

Out of that discussion the following conclusions were developed:

1. No actual shortage of pulp exists with the possible minor exception of special grades.
2. No immediate danger of a shortage is apparent as additional capacity can be made available readily.
3. Export of pulp may be expected to decrease with the inability of France and Italy to utilize our markets, and rayon pulp they have been taking can be diverted to the grades of which we are most in need.
4. Imports from Canada are expected to increase. The net of imports over exports will probably ease the domestic situation, removing fears of depletion arising from anticipated export demands which might advance prices.
5. A striking spread between public spot prices and contract prices has existed; an important element because 90 per cent of pulp is sold on contract and the spiraling spot price is becoming a basis for contract renewals. It was also noted that present contract prices are probably more than adequate for the most efficient units of the industry operating at full production.
6. Present spread between cost and contract prices seem adequate to attract production necessary to meet foreseeable needs.
7. Further price changes should result only from actual changes in basic costs; such as, wood, labor, fuel, chemicals, taxes, etc., but not through psychological factors.
8. Tonnage likely to be required for defense purposes is not expected to demand substantial diversion from normal industry requirements.

"Individual members of the industry whose unit production is substantial have assured us," Mr. Henderson said, "that they are firmly opposed to permitting an inflationary situation to develop." They offered full cooperation through their individual price policies to prevent such a development.

Representatives of the Defense Commission were assured that the government may at all times obtain complete cooperation in production for defense needs.

Wage Increase Given Hourly Paid Workers

Veldown Co. Division of Southern Kraft Corp. Raises Wages of Hourly Workers Two Cents Per Hour—Paper Mills Cited For Safety Records — Nursery Has 35 Million Trees — Other News.

[FROM OUR REGULAR CORRESPONDENT]

APPLETON, Wis., August 5, 1940—Employees of the Southern Kraft Corporation and Veldown Company divisions at Marinette, Wis., and Menominee, Mich., have been given an increase of two cents per hour in wage rates. The new schedule went into effect Sunday, July 28, and benefits most of the hourly paid workers. Other minor adjustments on behalf of the employees were included in the new policy.

New Pulpwood Firm Incorporated

A new corporation known as Charles H. Adams and Associates, Inc., has been formed and will have offices in the First National Bank Bldg., Appleton, Wis. Incorporation papers were filed in the Secretary of State's office at Madison, Wis. last week. Among the powers of the corporation are the buying and selling of timber land, and manufacturing and dealing in wood and pulpwood products. The articles are signed by Charles H., Ronald M., and Olive F. Adams, all of Eagle River, Wisconsin, located in the northern forest region.

Nepco Nursery Contains 35,000,000 Trees

The Nepco Lake Forest Nursery, operated by the State of Wisconsin, has become the largest in the state, according to William Brener, superintendent. It now has 35,000,000 trees under cultivation, as compared to 68,000 trees when it was started in 1913. Last year, more than 30,000,000 trees were produced and distributed for planting. The nursery is in Wood County, on the artificial lake created by the Nekoosa-Edwards Paper Company, which maintains the largest private forest in the state on adjacent lands.

Harry Guilbert Made Safety Director

Harry Guilbert of Chicago, has been appointed safety director of Region 6, composed of ten middlewest states, including Wisconsin. His appointment is one of eight made by the U. S. Department of Labor in a broad safety program to protect manpower needed for production in the national defense program. These men will serve without pay.

Paper Mills Cited for Safety Records

Among the Wisconsin concerns cited for commendable safety records during the year ending July 1, 1940 by the Employers Mutual Liability Insurance Company of Wausau, Wis., are the Menasha Products division of the Marathon Paper Mills Company, Menasha, Wis., and the Nekoosa-Edwards Paper Company with mills at Port Edwards and Nekoosa, Wis.

The Marathon plant during the year developed over 2,056,872 man-hours of work, and there have been only 11 accidents in which an injured person lost time from work.

Nekoosa-Edwards mills had an operating exposure of 1,268,320 man-hours for the Nekoosa mill, with only four lost-time accidents, and 1,184,919 man-hours for the Port Edwards mill, with eleven lost-time accidents.

The accident frequency for paper mills as a whole is 14.2 accidents per million man-hours, the insurance company reports.

Plaques will be awarded these concerns in testimony to their success in eliminating hazards and avoiding accidents.

Gilbert Picnic on August 17

Employees of the Gilbert Paper Company, Menasha, Wis., will hold their annual picnic Saturday afternoon and evening, August 17, at Smith Park, Menasha. John Pinkerton has been named general chairman, and has appointed committees to arrange for various events. One feature will be an amateur show. There will be games and contests, a band concert, picnic supper and dance.

Banta Co. to Hold Annual Outing

George Banta Publishing Company will hold its annual employees' picnic Saturday, August 10, at Smith Park, Menasha, with Francis T. Rooney as general chairman, assisted by Adolph Keller and Ray Tuchscherer. Games and contests will be in progress all afternoon, a plate lunch will be served, and many prizes will be awarded.

Tagged Balloons Found in 23 Cities

Out of 1,000 tagged balloons which were sent aloft at the Kimberly-Clark Corporation picnic at Neenah, Wis., July 21, there were eighty-five responses from finders who wrote in to claim a prize. The balloon which travelled the farthest distance was picked up at Traverse City, Mich., on the eastern shore of Lake Michigan. The sender, Harley Johnson of Neenah, will receive a $25 prize unless a more distant response is received. The finder, Bernard Curran of Detroit, a resorter at Traverse City, will receive $5.00. The returns were received from 23 different cities.

Albany Gets Pulp From West

ALBANY, N. Y., August 3, 1940—A consignment of several hundred tons of west coast government wood pulp was delivered by lighter at the port terminal here this week. It was said to be the first time in several years that pulp has been received by lighter. The shipment contrasted queerly with the many heavily loaded steamers that delivered pulp here prior to the invasion of the Scandinavian countries. Importers are still hoping that cargoes in Sweden destined for American ports will be released pointing out quoted prices have advanced materially while the sales would be of much assistance to the Swedish people. It is said that machinery in some paper mills in this section is being adjusted to handle Southern pine pulp.

Newsprint Rationing Adopted in Australia

Number of Pages of Newspapers Reduced From 25 to 35 Per Cent To Conserve Exchange—Sweden Turning To Forests For Motor Fuel and Utilizing Process To Produce Gas Direct From the Wood.

[FROM OUR REGULAR CORRESPONDENT]

MONTREAL, Que., August 5, 1940—According to a despatch received here, newsprint rationing is now in force in Australia, with the object of conserving exchange. Under the plan dailies exceeding 72 pages weekly and weekly and Sunday newspapers of more than 28 and 48 pages, respectively, are to reduce by 35 per cent of their tonnages used in 1938-39. Reductions for smaller papers range from 25 to 30 per cent. Reductions are based on the average number of pages in each publication during 1938-39.

Reductions will come up for review after six months and it is expected that over £1,000,000 in non-sterling exchange will be saved yearly.

Sweden Turning to Forests for Motor Fuel

A despatch from Stockholm states that as imports of liquid fuel into Sweden have become practically impossible, Sweden is turning to her forests to supply the deficiency. The despatch says:

"Charcoal-gas has been used with success in Sweden for road transport for many years and Swedish engineers must be counted among the pioneers in the development of suitable methods for the practical employment of this fuel. Thanks to these circumstances Sweden was able to meet quickly the increasing demand for charcoal-gas generators at the outbreak of war, and since then several thousands of aggregates have been installed. The majority of the vehicles using this fuel are lorries, but suitable sets have been developed also for private cars and buses. At present there are, for instance, 50 buses driven by charcoal-gas in Stockholm alone, and the State Railways are employing the system for a number of their rail buses with good result.

Motor Gas Direct from Wood

"Lately, Swedish firms have put on the market new types of generator aggregates, which produce motor gas direct from wood, eliminating the charring process. Several types have been approved by the Swedish authorities, and it is expected that this form of producer gas will become widely used. As waste wood can be used and no preparation of the fuel is necessary, the wood gas competes very favorably in economy with charcoal-gas, although, naturally, larger quantities of fuel are required.

"From her forests Sweden obtains, further, considerable quantities of wood alcohol and turpentine, which can be used for the running of combustion engines. Both these products are received as by-products in the manufacture of chemical pulp. In first place the Swedish authorities aim at increasing the output of wood alcohol, which can be done by means of employing special methods for the purpose. Negotiations are at present going on between the Swedish State and the pulp manufacturers, and it is calculated that Sweden, if necessary, can raise her production of wood alcohol to 120,000 000 litres per year with the existing plants.

"While Sweden is thus undertaking energetic efforts to safe-guard her supply of motor fuel by employing to an increasing extent substitutes, she is naturally investigating all possibilities for a resumption of the import. The substitutes must be regarded as of crisis character, and, no doubt, most vehicles will return to petrol and heavy oils, when the present sharp restrictions can be abolished."

Donnacona Expands Production

R. P. Kernan, president of the Donnacona Paper Company, reports that there has been a marked expansion in the earnings of his company. For the first half of the current year newsprint output amounted to about 70 per cent of capacity. This compares with approximately 48 per cent in the like period of 1939. At the present time the plant is operating at capacity. Expansion in other departments was recorded during the last three months, production of groundwood and sulphite pulp being practically double that compared with the opening of the year. The company's new board bill is operating at capacity, with a good backlog of orders.

Sorg Co. Must Cease Interference

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., August 7, 1940—The National Labor Relations Board today announced a decision requiring Sorg Paper Company, Middletown, Ohio, to diestablish completely Sorg Paper Company Employees Association and the Superior-Lawrence Employees Association, and to cease giving effect to any agreement which it may have entered into with those two organizations.

The board also ordered the company to cease discouraging membership in the CIO's United Paper Workers of America, Local Industrial Union No. 112 and to reinstate, with back pay, Samuel Isbell and Effie Wikel. The company is also required to reinstate the insurance policies of Isbell which lapsed by reason of its refusal to accept payments thereon after his discharge. In addition, the Board ordered the company, upon request, to bargain collectively with the United as the exclusive representative of its employees. The Board dismissed allegations of the complaint that the company had discriminated against eight other employees.

Early in March, 1937, the United began organizing the company's employees; at that time a plan of employee representation instituted in 1933, after the passage of the N.R.A., was in effect. The board found that the plan was formulated and instituted by the company, vesting in itself control of the representation which the plan purported to grant to the employees. The board concluded that the company had dominated and interfered with the formation and administration of the plan and contributed support to it. The association, the board held, was an outgrowth of the plan and was subject to the same company domination.

Controlled Mixing and Blending Of Coating Materials*

By E. M. Rupp[1]

A constant search is being made for better methods, higher quality products, closer control of processes and, of course, lower costs of manufacture. The manufacturers of coated papers have indicated considerable interest in equipment for improving the uniformity and smoothness of their coatings. This interest led us to conduct a series of tests in cooperation with the Edgar Brothers Laboratory on the results to be obtained by mulling the coatings in the Simpson mixer which is widely used on all types of dry, plastic and slurry mixes.

The Simpson mixer consists of a circular stationary pan in which is mounted a combination of plows and wide-faced, large diameter, heavy mullers. The plows and mullers revolve. The plows turn the materials over and line them up under the mullers which impart an intensive mulling, wiping or smearing action. The combined action of the plows and mullers results in a very rapid and thorough mixing and blending and a smearing out of unmixed particles in the batch. The result is a smooth paste in a very short time. After mixing, the materials are discharged by the action of the plows through an outlet or door in the bottom of the pan. Complete discharge may be accomplished in a few seconds or longer if desired.

Figure 1 shows the 24 inch dia. pan laboratory size Simson mixer in which the tests were made. The results obtained in the laboratory size Simpson mixer are quite comparable to those obtained in the 9 sizes of production machines although the production machines usually are more efficient because of the wider, heavier mullers used.

Figure 2 shows the No. 2—6 foot dia. pan Simpson intensive mixer having a capacity of approximately 100 gals. or more per batch. The data which is presented is on the makedown of clays in the muller with subsequent tests for smoothness at the Edgar Brothers Company laboratory.

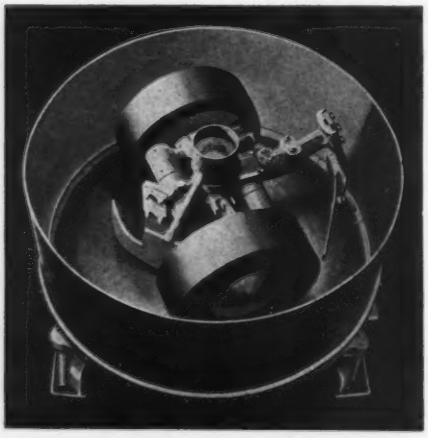


FIG. 1.
No. 2, 6 inch Diameter Pan Simpson Intensive Mixer

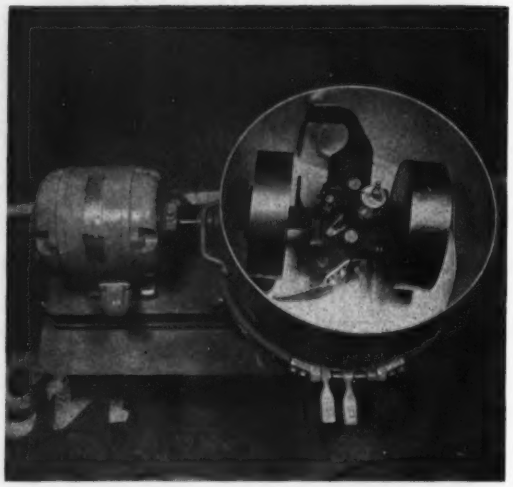


FIG. 2.
24 inch Laboratory Size Simpson Intensive Mixer

In one series of tests a paste was made in the muller and Edgar Brothers added the casein in a laboratory agitator type of mixer and tested for smoothness.

In a second series of tests the paste was first made in the muller, then the casein solution was added in the muller and the resultant coating tested for smoothness.

The laboratory procedure is outlined as follows:

Clays used:—Satin and H.T.
Particle Distribution:—

	Satin	H.T.
0 to ¼ micron	15%	9%
¼ to ½ micron	29%	12%
½ to 1 micron	35%	21%
1 to 2 micron	15%	20%
2 to 5 micron	5%	22%
5 to 10 micron	1%	12%
Greater than 10 micron	....	4%
Total	100%	100%

SERIES I

Size of Batch—20 lbs. Clays
Mixing time—2 min. dry, 18 min. wet, total 20 min.
% Solids—54.5%

Batch No.	% Satin	% H. T.
1	....	100%
2	25%	75%
3	50%	50%
4	75%	25%
5	100%	....

Procedure

The dry clays were added to the muller and mulled 2 minutes. Then all the water was added and the batch mixed an additional 18 minutes. Samples of each of the batches were sent to the laboratory for smoothness tests.

* Presented before the Coated Paper Group Meeting at the Annual Convention of the American Pulp and Paper Mill Superintendents' Association, Cincinnati, Ohio, June 18, 1940.

[1] Ceramic Engineer, National Engineering Co., Chicago, Ill.

At the laboratory these paste samples were made into coating colors by adding cooked casein (12 per cent casein based on clay) and moderate stirring.

The resulting coating colors were compared with similar colors prepared by the usual old method in the laboratory.

Smoothness Test

There are a number of methods of attempting to evaluate how well a coating color is made down and probably none is perfect. For this comparison the test sheets were prepared on a small laboratory coating machine which coats directly from a roll of raw stock, by pulling out a long coated sheet approximately 15 feet in length and then cutting this into sheets of a size convenient for testing. It has been observed that when the makedown is poor, the smoothness of the sheet falls off rapidly from the first sheet to the last, because the undispersed small lumps appear to accumulate in the coating color reservoir and to show up very decidedly in the later sheets.

As an indication of the degree of makedown smoothness tests were made on the 1st, 5th, 10th and 15th sheets of each set.

The results are listed as follows:

Sample	How Mixed	Smoothness, Sheet Number			
		1	5	10	15
Batch No. 1	Simpson	21.3	19.6	18.0	16.5
	Lab. (old method)	17.6	15.0	10.3	9.3
Batch No. 2	Simpson	21.6	17.0	16.7	17.3
	Lab. (old method)	18.3	17.0	10.5	7.0
Batch No. 3	Simpson	23.7	19.7	19.2	16.8
	Lab. (old method)	20.5	19.0	13.7	9.5
Batch No. 4	Simpson	29.0	25.0	23.0	20.5
	Lab. (old method)	24.3	21.7	17.0	13.5
Batch No. 5	Simpson	31.5	32.0	28.0	22.3
	Lab. (old method)	19.5	18.5	13.5	7.0

From the above figures it is obvious that the coating color made down in the muller is considerably smoother than the same material made down by the old method. Not only was the first sheet smoother but the difference in degree of smoothness became greater as the end of the sheets is approached.

Additional tests were made to determine the effect of adding the casein to the paste in the muller. Two batches were made, the only variation being an adjustment of the mullers.

SERIES II

Size of Batch: 20 lbs. Clays
Mixing Time: 2 min. dry, 18 min. wet, 10 min. with casein. Total 30 minutes
% Solids:— 48.5% before casein added
38.7% after casein added
Batch:— 75% H.T. 25% Satin
Casein Solution:—14% casein to Satin clay
13% casein to H. T. Clay
5.25 parts H_2O to 1 part dry casein
1 oz. concentrated ammonia to 1 lb. dry casein
Casein added slowly to water and stirred to prevent lump formation. Ammonia then added and mixture heated to 50° C., then cooled.

Procedure

20 lbs. of dry clays added to muller and mulled 2 minutes. All water added and mulled an additional 16 minutes. All casein solution added and mulled an additional 10 minutes. Smoothness readings as similarly described were taken. There were two batches "A" and "B" the only difference being a muller adjustment. These are compared with the 75 per cent H.T. 25 per cent Satin Mix under Series I

Sample	Smoothness, Sheet Number			
	1	5	10	15
A	20.8	19.5	20.4	20.3
B	21.3	20.7	20.5	23.3
Series I—Batch 2	21.6	17.0	16.7	17.3

From the above it is obvious that the coating color entirely made down in the Simpson shows greater smoothness than that made down partially in the Simpson with the casein solution added by the "old" method in the laboratory.

Summary

We realize that the few tests shown here do not present the complete picture of what may be accomplished by the mulling of coating colors. Additional work is being done with the addition of the casein dry to the dry clays with subsequent addition of the proper amount of water to the batch.

There seems little question but that through the use of the Simpson Mixer it is possible to obtain:

1. Faster makedown
2. Better dispersion
3. Improved smoothness
4. Improved control

Savings

These advantages are obtained not at higher costs because the following savings also should be available:

1. Less labor
2. Lower power costs
3. Less Floor Space
4. Fewer machines for given production therefore less investment.
5. Less maintenance

From additional test work which has been done, it appears probable that the use of the muller will permit makedown with a higher solids content. Some work has been done with 66.7 per cent solids as compared to the 54.5 per cent reported here.

Acknowledgement

Acknowledgement is made to Edgar Brothers Laboratory for their cooperation in developing this paper.

Cost Finding Record for Conveyor Belts

Long a leader in the effort to have consumers keep a careful record of costs on conveyor belting in use, the B. F. Goodrich Company, Akron, Ohio, has just published a new edition of "Cost Finding Record for Conveyor Belts" which is now available upon request to the manufacturer.

The volume contains 12 record sheets of two pages each, sufficient to keep a complete record on 12 conveyor belts for six years, with tonnage records for each month on each belt.

The sheets provide listing of all essential information on the belt, including make, brand, duck weight, length, width, number of plies, type of joint, lacings used, best previous record of belt on the installation, date received and installed, date removed, time in use, invoiced cost, cost of repairs, total cost, total tonnage handled, and the cost per ton. Space is also provided for a maintenance record, a description of the layout, pulleys, idlers and every other important factor that goes into a conveyor belting problem.

Use of the cost booklet, Goodrich engineers believe, will allow every consumer to have a running record of his conveyor belting installation, with the possibility of breaking down comparative costs of belts on different parts of a conveyor system.

Keeping such a record will prove of great value in the design of future belts for each installation, Goodrich engineers point out.

Obituary

Norman N. Fowler

Norman N. Fowler, president and general manager of the Hampden Glazed Paper and Card Company of Holyoke, died at his home in Springfield, Mass., 40 Ingersoll Grove, on July 30, 1940 after a short illness at the age of 82. He was born in Agawam on October 24, 1857, the son of George and Mary Hazen Fowler. On October 9, 1889 he married Minnie Lee Smith of Springfield by whom he had four children, three of whom survive.

He attended the country school during his younger years, many of which he spent as a chore boy on his father's farm. He attended high school in Springfield, walking daily all the distance and ferrying across the river as there was no bridge at that time. He was wont to drive the cows to pasture in the morning during these trips to school and bringing them back at night as a part of his work and often walked barefoot to save his shoe leather.

About this time, J. C. Parsons, a well-to-do Agawam farmer had started a paper mill in Holyoke and through his close friendship with Norman Fowler's father, gave him an interest in the new business. This was the beginning of an upturn in the family income and made it possible for a college education.

After graduating from Sheffield Scientific School and Yale Law School, he opened law offices in Springfield, after being admitted to the Massachusetts Bar by the late Judge Knowlton of the Supreme Court. However, he was not destined to be a lawyer as he was soon called to Holyoke by his brothers George and Timothy who had started a paper coating mill in that city under the name of the Hampden Glazed Paper and Card Company. The business had a slow and uncertain beginning but through the persistent efforts of the brothers, the company prospered and finally became one of the leaders in its field.

A fourth brother, Perry, was called to aid in the new venture as chemist and the four brothers worked for many years in building up the company.

Norman Fowler, started as salesman and from then until the end, directed the sales policies. At his death he was president and general manager and had been active until only a few months before the end. Having been trained from youth to know what work was, he always placed work before play and gave himself untiringly to the completion of the task in hand.

Clarence M. Hurd

Clarence M. Hurd, 58, superintendent of the Central Fiber Products company paper mill here for several years, died suddenly at his home, 515 Mulberry street, Mt. Carmel, Ill. Death was due to a heart attack.

Mr. Hurd, a native of Knox county, Ind., was a member of the local chapter, Royal Arch Masons, the Mt. Carmel lodge Free and Accepted Masons, the Knights Templar, the Elks lodge and the Rotary club. He also was a member of the Methodist church.

Surviving are his wife, Grace; a son, Wilbur of Olney; two daughters, Mrs. Annabelle Johnson of Grayville and Miss Louise Hurd of Mt. Carmel; his mother, Mrs. Mary Frances Hurd; a brother, Corban Hurd, and a sister, Miss Blanche Hurd, all of Mt. Carmel.

Funeral services were held at the Short funeral home. Burial was in Rose Hill cemetery.

William P. McCorkindale

William P. McCorkindale, 51, of South Hadley, Mass., inventor and paper machine technician, died August 2 in Holyoke Hospital, Holyoke, Mass.

Mr. McCorkindale invented a process and machine to make paper, basing his device on the suction theory for removing water.

He leaves his widow, Mrs. Madeline E. McCorkindale; two sons, Lawrence and William; a daughter, Ann; two sisters, Mrs. Frederick Hapgood of Jamaica, L. I., and Mrs. John Gardiner of Holyoke, and a brother, Edward of Chicopee. The funeral was held in Holyoke, August 4.

George Ruickbie

The death is announced at Bathurst, N. B., of George Ruickbie, aged 50, traffic manager of the Bathurst Power and Paper Company. He was a native of Newfoundland and prior to joining the Bathurst Power and Paper Company was a traffic expert with the Canadian Pacific Railway Company.

He is survived by his widow, one son, one daughter two sisters, Mrs. B. Shand, Toronto, and Miss E. Ruickbie, Montreal, and one brother, Robert, Montreal.

Colored Newsprint Sheets Dutiable

WASHINGTON, D. C., July 5, 1940—W. R. Johnson, Acting Commissioner of Customs, has held that colored newsprint paper in sheets should not come into the United States free of duty as newsprint paper under paragraph 1772 of the Tariff Act of 1930. In a communication on the subject to the Collector of Customs at Buffalo, Commissioner Johnson said: "Reference is made to the Bureau's letter of January 30, 1940, relative to the question of the proper classification of colored newsprint paper in sheets.

"As it appeared that there was a discrepancy between certain ports in the classification of these sheets in light colors, you were informed that the Bureau was requesting the Customs Agency Service to conduct the necessary investigations in the districts involved in order that the Bureau might determine whether the chief use of such sheets was in the printing of newspapers at and prior to the enactment of the Tariff Act of 1930. Your attention was invited to Abstracts 26481, 29122, C.D. 191, and T. Ds. 45128, 43358, 48938 and 49534.

"The Customs Agency Service has submitted to the Bureau reports giving the results of a thorough investigation conducted in the districts. Examination of these reports discloses that the chief use of colored paper in sheets at and prior to the enactment of the Tariff Act of 1930 was for the printing of hand bills and so-called "throwaways" and "dodgers" and not for the printing of newspapers.

"Colored paper in the form of sheets should not, therefore, be accorded free entry under paragraph 1772 of the Tariff Act of 1930, and any unliquidated entries at your port covering such merchandise should be liquidated with the assessment of duty at the appropriate rate. This decision will be circularized through the Customs Information Exchange."

CONSTRUCTION NEWS

Miami, Fla.—The Benner Box and Printing Company, Miami, organized to manufacture paper boxes and containers, has approved plans for new plant on local site, consisting of a main one-story structure, 80 x 255 feet, reported to cost over $65,000, with equipment. Erection contract has been awarded to the M. R. Harrison Construction Corporation, 1605 Biscayne boulevard, and work will be placed under way at once. L. B. Taylor, Congress Building, Miami, is consulting engineer.

Manayunk, Pa.—Fire recently damaged a portion of McDowell mill of the Glassine Paper Company, Main and Levering streets, Manayunk, manufacturer of glassine, greaseproof and kindred processed stocks. An official estimate of loss has not been announced. The damage will be replaced. Main offices of company are at Conshohocken, Pa.

Johnsonburg, Pa.—The Castenea Paper Company, manufacturer of book and other paper stocks, has awarded general contract to the Hyde-Murphy Company, Ridgway, Pa., for major part of modernization and improvement program at mill, previously referred to in these columns, and work will be placed under way at once. Facilities will be provided for increased production. Cost is reported over $50,000, including equipment. T. K. Hendryx, 165 Interstate parkway, Bradford, Pa., is architect and engineer.

Chicago, Ill.—The Acme Paper Box Company, Inc., 2427 West 14th street, manufacturer of folding paper boxes and containers, has concluded arrangements for purchase of a modern one and two-story industrial building at State and Sixtieth streets, heretofore held by the Todd Company, Rochester, N. Y., manufacturer of check protectors, etc. A reported consideration of $75,000 was given for the property, which includes an adjoining tract, totaling about 21,000 square feet of land. The present building approximates 62,700 square feet of floor space and will be improved and equipped by the Acme company for a new plant, with present works removed to new location and considerable increase in capacity carried out. An air-conditioning system will be installed in a portion of the building. The improvement program is scheduled to be placed under way at once.

Fernandina, Fla.—The Container Corporation of America, Inc., 111 West Washington street, Chicago, Ill., manufacturer of corrugated boxes and containers, has superstructure under way on new addition to sulphate pulp mill at Fernandina, consisting of a one-story structure, to be used for increase in present facilities. It is reported to cost over $65,000, with equipment. Erection contract was awarded recently to the George D. Auchter Company, East Adams street, Jacksonville, Fla.

Pensacola, Fla.—The Florida Pulp and Paper Company, Inc., Pensacola, is placing awards for equipment for proposed new local pulp and paper, recently referred to in these columns, and for which superstructure will be placed under way on a 600-acre tract of land at Cantonment, about 15 miles from Pensacalo, in vicinity of Escambia River. Order has been placed with the Black-Clawson Company, Hamilton, Ohio, for a paper-making machine and accessory equipment; bleaching, screening, and deckering equipment will be furnished by the Improved Paper Machinery Company, Nashua, N. H.; jordans, beaters and auxiliary equipment have been ordered from the Shartle Brothers Machine Company, Middletown, Ohio; the Swenson Evaporator Company, Harvey, Ill., has the contract for evaporators and accessories; barker and chipper machinery will be supplied by the Carthage Machine Company, Carthage, N. Y.; and the Pittsburgh Piping and Equipment Company, Pittsburgh, Pa., will make the piping installation. Company recently has awarded general erection contract to the Rust Engineering Company, Clark Building, Pittsburgh. New mill will be used for the production of white wrapping papers, writing and book papers, and allied stocks, and is estimated to cost approximately $3,000,000, with machinery. Hardy S. Ferguson & Co., 200 Fifth avenue, New York, N. Y., are consulting engineers; R. G. Seip is chief engineer in charge of project. James H. Allen is president.

Wausau, Wis.—The Minnesota Mining and Manufacturing Company, Forest street, St. Paul, Minn., manufacturer of sandpaper and other abrasive paper stocks, etc., will begin work soon on proposed new addition to raw material mill at First and Rosencranz streets, Wausau, previously referred to in these columns, to provide for considerable increase in capacity. It will be one-story, totaling about 10,000 square feet of floor space, reported to cost close to $40,000, with equipment. Plans are under advisement for carrying out erection with day labor. Toltz, King & Day, Inc., Pioneer Building, St. Paul, is architect.

Asbestos, Que.—The Canadian Johns-Manville Company, Ltd., Sun Life Building, Montreal, Que., manufacturer of asbestos millboard, insulating paper stocks and kindred products, has plans maturing for proposed new additions to mill at Asbestos, previously referred to in these columns, and will begin erection at early date. Two new extensions will be built, each two-story, 130 x 320 feet, and 75 x 95 feet, respectively, to be used for manufacturing division, and storage and distribution department, in order noted. Cost reported over $125,000, including equipment. R. A. Donovan is engineer in charge.

Toronto, Ont.—E. S. & A. Robinson (Canada), Ltd., 888 Dupont street, Toronto, manufacturer of paper bags and containers, has approved plans for new plant on Laird street, Leaside district, where large tract of land has been selected, and will proceed with superstructure at once. It will be three-story, totaling about 125,000 square feet of floor space, with size 160 x 260 feet. Company is now operating three local plants and as soon as new building is available these will be removed and consolidated at the new location, with equipment and facilities for increased capacity. A one-

story office building will be constructed on adjoining site. Entire project is reported to cost over $100,000 and is scheduled for completion in the fall. Company is a Canadian subsidiary of E. S. & A. Robinson, Ltd., Bristol, England.

Merritton, Ont.—The Alliance Paper Mills, Ltd., manufacturer of writing and kindred paper stocks, insulating board specialties, etc., has awarded general contract to the Dunker Construction Company, Ltd., 251 King street West, Kitchener, Ont., for proposed new addition to mill, previously referred to in these columns.

Eli deVries Joins Parsons & Whittemore

In the issue of June 13 the PAPER TRADE JOURNAL printed an interesting interview with Eli deVries who had just arrived from Holland. It was Mr. deVries' intention to establish a new paper exporting business, but after surveying the situation he decided it would be preferable to associate himself with an existing paper export organization. He has now completed arrangements whereby he has joined Parsons & Whittemore, Inc., one of the oldest and best known paper export firms in the United States.

Parsons & Whittemore's history through old affiliations and connections goes back nearly 100 years and the present company has been in existence over 30 years. The officers of the company are: president, Howard Whittemore; vice president, E. R. Southouse; secretary, treasurer, C. W. Hatch and Mr. deVries will be elected a vice president of the company.

The combination of interests of Parsons & Whittemore, Inc. and Mr. deVries gives the company a wide connection all over the world, there being hardly a country of any importance in which they are not now directly represented. Mr. deVries' personal connections are mostly with India, the Dutch East Indies, China, and Burma, and the Far East, generally through his old established business in Holland.

Harold Hughes, very well-known and well-liked in the export paper trade who has been connected

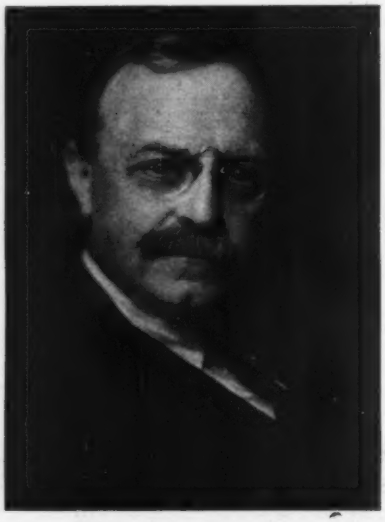
ELI DEVRIES
Vice President, Parsons & Whittemore

with Parsons & Whittemore, Inc. for some years past, still remains in charge of China, the Philippines, Cuba and Venezuela. Harry Vernon, also well and favorably known to all mills interested in export, retains charge of South Africa, South America, Central America, and New Zealand; while E. R. Southouse will continue to handle Great Britain and Australia. William Flohr, of course, remains in charge of the Pulp Department, Mr. Hatch, treasurer and secretary, being in charge of accounts department, and Howard Whittemore remains as president.

The company, being strengthened in the export field by Eli deVries, invites correspondence and offers of any mills interested in exporting.

Make Improvements at Hyde Park

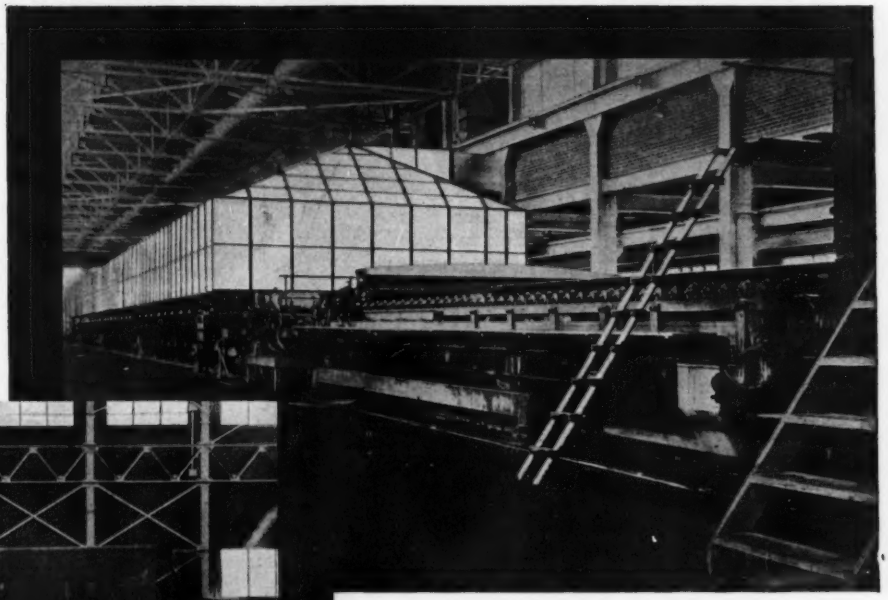
BOSTON, Mass., August 5, 1940—An entire new roof is being built over the machine room of the plant of the Tileston & Hollingsworth Company at Hyde Park.

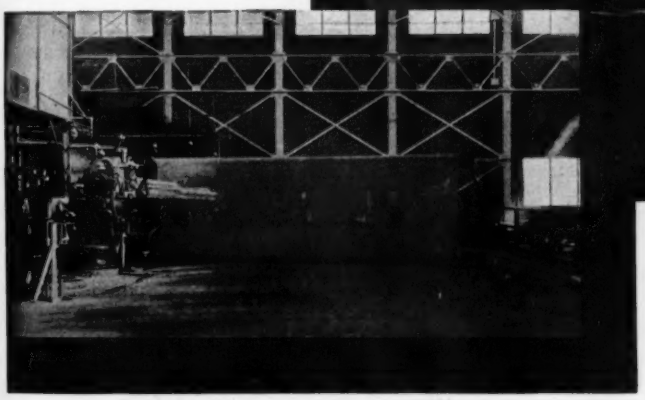


HOWARD WHITTEMORE
President, Parsons & Whittemore

E. R. SOUTHOUSE
Vice President, Parsons & Whittemore

THE BELOIT *Removable Fourdrinier*





● Wire is strung in aisle while machine is in operation, if desired.

● Fourdrinier pit can be washed out while wire is being installed.

● Wire bundle is taken from shipping box and mounted directly in carriage—no chucks to apply—no further handling as bundle is unreeled as carriage moves along to form wire loop.

● All wire poles are mounted in carriage before loop is formed. Inside poles are inserted inside the wire.

● Safest — most convenient — quickest method of installing Fourdrinier wire.

THE BELOIT WAY BELOIT IRON WORKS PAPER MACH'Y BELOIT, WIS., U.S.A. **IS THE MODERN WAY**

Government Paper Bids

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., August 7, 1940—Government Printing Office has received the following bids for 45,600 pounds (600,000 sheets) of 22¼ x 32¼ M.F. book paper; Stanford Paper Company, 5.24 cents; R. P. Andrews Paper Company, 5.24 cents; Barton, Duer & Koch Paper Company, 5.31 cents; Whitaker Paper Company, 5.34 cents; Mudge Paper Company, 5.24 cents; Paper Corp. of U. S., 4.73 cents; Marquette Paper Company, 5.735 cents; Fitchburg Paper Company, 5.59 cents; Old Dominion Paper Company, 5.7942 cents.

For 93,000 sheets of 19½ x 26½ buff gummed paper; Mudge Paper Company, $9.79 per M sheets; Nashua Gummed & Coated Paper Company, $9.50 less 2%; R. P. Andrews Paper Company, $9.40; Barton, Duer & Koch Paper Company, $9.88; Virginia Paper Company, $9.25; Stanford Paper Company, $8.40; Mathers-Lamm Paper Company, $8.40, $8.75 and $9.26; Old Dominion Paper Company, $10.29; and Eureka Specialty Company, $9.60.

For 42,250 pounds (250,000 sheets) of 28 x 41 dull coated book paper; Enterprise Paper Company, 7.725 and 7.71 cents, less 3 per cent; Mathers-Lamm Paper Company, 7.55 and 7.4 cents; Marquette Paper Company, 7.23 cents; Virginia Paper Company, 7.4 cents; R. P. Andrews Paper Company, 8.68 cents; Mudge Paper Company, 7.25 and 7.4 cents; Barton, Duer & Koch Paper Company, 7.14 and 7.28 cents; Whitaker Paper Company, 6.85 and 7 cents; and Stanford Paper Company, 7.23 cents.

For 5,000 pounds (13,000 sheets) of 19 x 24 heavy white blotting paper; L. Hyman & Sons, 13 cents; Graham Paper Company, 13.1 cents; Stanford Paper Company, 13 cents; Mathers-Lamm Paper Company, 11.98 cents; Cauthorne Paper Company, 12 cents; Whitaker Paper Company, 11.95 cents; Mudge Paper Company, 11.88 cents; Old Dominion Paper Company, 11.94 cents; Barton, Duer & Koch Paper Company, 11.74 cents; and Virginia Paper Company, 13 cents.

For 11,634 pounds (42,000 sheets) of 30 x 48 yellow coated cover paper; Virginia Paper Company, 9.1 and 8.95 cents; Stanford Paper Company, 8.72 cents; Barton, Duer & Koch Paper Company, 8.52 and 8.4 cents; and Whitaker Paper Company, 8.4 cents.

Paper Box Sales at Record Level

Figures released last week by the Folding Paper Box Association of America showed that shipments of folding cartons for the first half of 1940 had attained the highest level on record. The six-month's total was 9.2 per cent above the first half of 1939 and slightly in excess of 1937, the industry's previous high. All sections of the country shared in the advance and foreign shipments made an exceptional showing, being up 28.4 per cent over last year.

This year's high level is attributed by members of the industry to a combination of factors including higher consumer income, increased use of cartons for fresh foods and other products, and some advance buying in anticipation of a pulp shortage.

The association also announced the formation of a committee to assist its members in handling problems arising from the Federal Food, Drug and Cosmetic Act, which went into full effect last month.

Chicago Paper Market Firm

[FROM OUR REGULAR CORRESPONDENT]

CHICAGO, Ill., August 5, 1940—The Chicago paper market showed little tendency to expand activity during the week. While prices remain firm in virtually all instances, a slowness in demand persists and the spotty character of the orders, plus their size, is viewed as an indication by some Chicago paper executives that the retail paper business is still finding it difficult to get orders. Paper jobbers also were reported to have found little to cheer about during the week as printers indicated that sales campaigns had not as yet received the "go" sign. Kraft papers continue very firm with some expansion of activity in evidence. Sulphites remain about the same. Groundwood distributors of papers found business steady considering the season and there was a hopefulness that buying would be of a more comprehensive character in the near future. Bonds and ledgers show no change and books and covers likewise marked time despite the fact that prices held firm in virtually all reports received. Waste papers continue strong.

Buy Paper Under Walsh-Healey Act

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., August 7, 1940—During the week ended July 20, the Government purchased $388,096.72 worth of paper and allied products under the Walsh-Healey Act as follows: $310,303.00[1] worth of paper for the Bureau of Engraving and Printing from The Champion Paper and Fibre Company, Hamilton, Ohio; $10,010.00 worth of file folders for War Department from Majestic File Folder Corporation, New York; $46,750.00[1] worth of check paper for Bureau of Engraving and Printing from Paper Corp. of United States, New York; and $21,033.72 worth of pads, paper for War Department from L. Hyman & Sons, N. Y. C.

[1] Indefinite contract other than General Schedule. Purchases to be made if and when needed.

Union Bag to Build Wharf

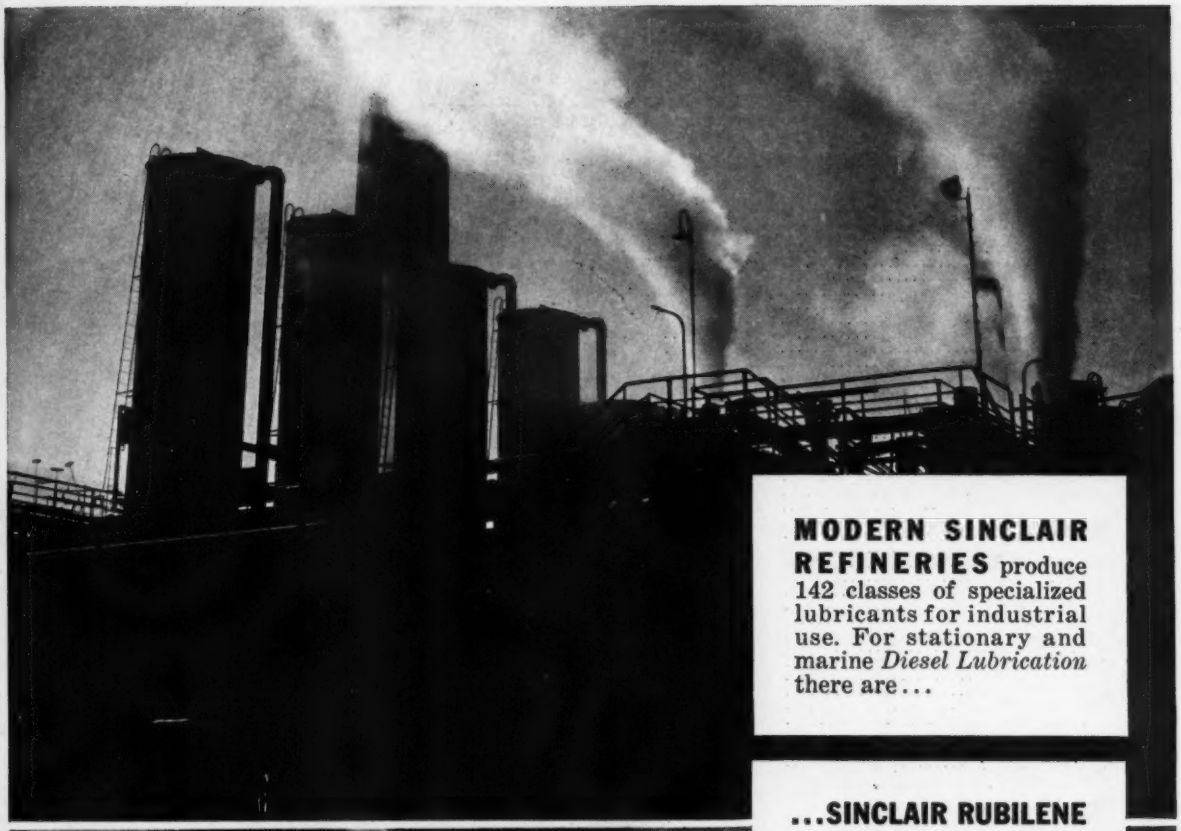
SAVANNAH, Ga., August 5, 1940—The Union Rag and Paper Corporation has made application for a War Department permit to construct a wharf in Cedar creek, nine-tenths of a mile above its mouth, near Valona it was announced last week by Maj. S. B. Troland, United States district engineer.

The proposed wharf is to be twelve feet wide and seventy-five feet long and will extend twenty-seven feet channelward of the mean low water line. The outer thirty-five feet of the wharf will be built as a ramp, and there will be fifteen feet of water available at mean low tide. In addition, one mooring dolphin is to be placed forty-two feet southeast of the wharf.

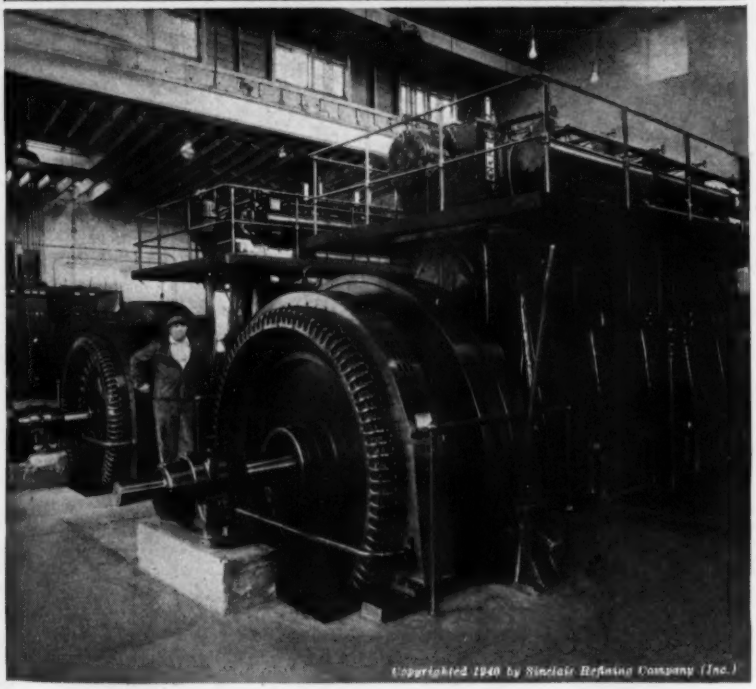
Carter, Rice Issue Price List

[FROM OUR REGULAR CORRESPONDENT]

BOSTON, Mass., August 5, 1940—Carter, Rice & Co., Corporation, is issuing an almost complete set of price-list pages for their Carter Rice Book. The pages include chemical writing, safety check papers, bonds, manifolds and onionskins, mimeograph and duplicator, ledgers, blottings, book papers, envelopes, blanks, railroad tough check, Bristols and tag stock, bringing the book up to date.



MODERN SINCLAIR REFINERIES produce 142 classes of specialized lubricants for industrial use. For stationary and marine *Diesel Lubrication* there are...



...SINCLAIR RUBILENE AND SINCLAIR GASCON OILS. These oils resist oxidation... sludging, and keep rings and valves free of sticky deposits. Their use promotes longer operating periods between overhauls.

Our engineers will gladly discuss any particular Diesel lubrication problem with you—without obligation. For further information, write the nearest Sinclair office or Sinclair Refining Company, 630 Fifth Avenue, New York, N. Y.

* * *

(Left) **FULTON DIESEL ENGINES** *in municipal plant Palmyra, Mo. Satisfactorily lubricated with Sinclair Rubilene Heavy. Supt. H. E. Stuhlman at left.*

SINCLAIR INDUSTRIAL OILS

SINCLAIR REFINING COMPANY (Inc.)

2540 W. CERMAK RD. CHICAGO · 10 W. 51ST ST. NEW YORK · 1907 GRAND AVE. KANSAS CITY · 573 W. PEACHTREE ST. ATLANTA · FAIR BUILDING, FT. WORTH

FINANCIAL NEWS

New York Stock Exchange

High, Low and Last for Week Ending August 7, 1940

	High	Low	Last
A. P. W.	2⅜	2⅜	2⅜
Armstrong Cork Co.	31	30	30½
Celotex Corp.	6⅝	6¼	6½
Celotex Corp., pf.	52	52	52
Certain-Teed Products Corp.	4⅜	4⅛	4⅛
Certain-Teed Products Corp., pf.	23¾	21¾	22
Champion Paper & Fibre Co.	23¾	23¼	23¾
Champion Paper & Fibre Co., pf.	....	....	....
Congoleum-Nairn Co.	17¼	15½	15½
Container Corp. of America	15	14	14
Continental-Diamond Fibre Co.	6½	6⅛	6⅛
Crown-Zellerbach Co.	15½	14¼	14¼
Crown-Zellerbach Co., pf.	87½	85¾	85¾
Flintkote Co.	14	13¾	13¾
Robert Gair	3⅛	2⅞	2⅞
Robert Gair, pf.	12½	12½	12½
International Paper & Power	15⅛	14⅛	14¾
International Paper & Power, pf.	55¼	52¾	55⅛
Johns-Manville Corp.	58¾	57¼	57¼
Johns-Manville Corp., pf.	125	125	125
Kimberly Clark Corp.	32	32	32
MacAndrews & Forbes	....	....	....
MacAndrews & Forbes, pf.	....	....	....
Masonite Corp.	26¼	25¾	26¼
Mead Corp.	9⅜	8½	8¾
Mead Corp., pf.	68	68	68
Paraffine Companies, Inc.	32	32	32
Paraffine Companies, Inc., pf.	....	....	....
Rayonier, Inc.	17¾	15¾	15¾
Rayonier, Inc., pf.	30½	30	30
Ruberoid Co.	15	15	15
Scott Paper Co.	....	....	....
Scott Paper Co., pf.	114	114	114
Sutherland Paper Co.	24½	24½	24½
Union Bag & Paper Corp.	13	11¾	12¼
United Paperboard Co.	4⅜	4	4¼
U. S. Gypsum Co.	65½	64½	65¼
U. S. Gypsum Co., pf.	175	175	175

New York Curb Exchange

High, Low and Last for Week Ending August 7, 1940

	High	Low	Last
American Box Board Co.	4½	4½	4½
Brown Co., pf.	19¼	18½	19¼
Great Northern Paper	44¼	43	43
National Container Corp.	11½	10¾	10¾
St. Regis Paper Co.	3	2⅝	2¾
St. Regis Paper Co., pf.	63½	60	62
Taggart Corp.	3¼	3¼	3¼

Union Bag Nets $867,273

The Union Bag and Paper Corporation reports for the three months ended June 30, 1940, net profit of $867,273 after all charges including provision for Federal income taxes at the rates required by the 1940 act. This is equivalent to 69 cents per share on the capital stock outstanding and compares with a net profit of $78,874 for the corresponding quarter last year. For the first quarter of this year the company earned $699,431, or 55 cents per share.

For the twelve months ended June 30, 1940, the company reports net profit of $2,299,872, after all charges including provision for Federal income taxes at the rates applicable to the respective portions of this period. This is equivalent to $1.82 per share on the outstanding capital stock and compares with net profit of $575,019, or 46 cents per share, for the twelve months ended June 30, 1939.

Alexander Calder, President, in his letter to stockholders, stated that there were further increases in sales both for the quarter and twelve months ended June 30, 1940. Sales for the second quarter of this year amounted to $5,653,483 compared with $3,673,871 for the second quarter of 1939 and $4,832,766 for the first quarter this year. For the twelve months ended June 30, the company reports sales of $20,569,292 compared with $16,023,068 for the twelve months ended June 30, 1939.

To Continue Dexter Suit

[FROM OUR REGULAR CORRESPONDENT]

DEXTER, N. Y., August 5, 1940—The widows of the former owners of the Dexter Sulphite Pulp and Paper Company, Mrs. Florence E. Campbell and Mrs. Alice M. Campbell, have filed notice through their attorney that they will continue the fight to the Court of Appeals in the suit to recover control of the concern. In June, the Appellate Division, unanimously affirmed the decision of Judge Leonard C. Crouch, official referee, whereby the voting trust was valid under which the company was operated prior to the equity receivership and declared that the two plaintiffs were entitled to only half the stock holdings of their husbands. Owing to the fact that the Appellate Division's affirmance was unanimous, leave to appeal must be obtained from that court or the Court of Appeals before the fight can be carried to the latter court. Attorney Charles A. Phelps represents the defendant company, its officers, directors and creditors in the proceedings.

Parsons Paper Co. Gets $43,100 Reduction

HOLYOKE, Mass., August 5, 1940—The Parsons Paper Company was granted a valuation reduction of $43,100 and a tax bill abatement of $1,361.96 for 1938, according to a notification received today by the Board of Assessors from the State Board of Tax Appeals. The company petitioned for a valuation reduction of $160,000 on its 1938 figure and the case was heard in Springfield in December of last year, with former Commissioner Richard Stapleton presiding.

Bernard J. Grady, chairman of the Board of Assessors, said that he had received the brief announcement of the appeal board's decision and that probably within a few days the full report would be filed with him.

According to the chairman the decision does not alter the valuation of the mill power contiguous with the property.

Oxford Earns $437,134

The Oxford Paper Company and subsidiaries for the six months to June 30, reports a net income of $437,134, equal after preferred dividends, to 48 cents each on 380,735 common shares, compared with $227,548 or $2.27 each on 100,244 shares of preferred stock last year. June quarter: Net income, 300,307 or 45 cents a common share, against $136,827 or 2 cents a common share in March quarter this year and $115,933 or $1.16 a share on preferred stock in June quarter a year ago.

Minn. & Ontario Profit Up

Net profit on sales of the Minnesota and Ontario Paper Company and subsidiary organization in the first six months of this year was $1,120,788, compared with $238,936 in the same period in 1939, according to the report on operations submitted by

the trustees to the United States District Court in Minneapolis. Net sales were $8,395,502, or $1,724,879 more than in the first half of 1939.

The report said representatives of the committee acting for bondholders had informed the court that they would recommend acceptance of the trustees' plan as amended on July 16. Representatives of about 90 per cent of the unsecured indebtedness of the company also have recommended acceptance of the plan, it was said.

Flintkote Nets $621,470

The Flintkote company and subsidiaries for the twenty-eight weeks to July 13: reports a net income of $621,470, equal to 92 cents each on 678,546 shares outstanding, against $610,331, or 91 cents each, on 672,996 shares for last year's period; net sales, $9,163,272, against $8,339,828. Sixteen weeks to July 13: Net income, $507,152, or 75 cents a share, against $507,837, or 75 cents a share, in the same weeks of 1939; net sales, $6,032,388, against $5,489,711. Fifty-two weeks to July 13: Net income, $1,443,522, or $2.13 a share, against $1,152,522, or $1.71 a share, in corresponding period of previous year; net sales, $17,987,591, against $16,188,179.

Brown Co. Reorganization Plan

[FROM OUR REGULAR CORRESPONDENT]

PORTLAND, Me., July 26, 1940—Reorganization committee managers for the Brown Company, $40,000,000 pulp and paper products company, reported today that assents to a recently submitted plan had been received from more than 44 per cent of the bondholders and more than 41 per cent of the preferred stockholders.

The committee reminded security holders that to make the plan effective assents were required from 66⅔ per cent of the bondholders and a majority of the preferred stockholders.

Ruberoid Sales Rise

The Ruberoid Company for the six months to June 30 in a corrected interim report sent to stockholders shows revised net sales of $7,668,377 compared with $7,239,643 in the first half of 1939. Sales for the June quarter were $4,598,238 against $4,586,059 in the same quarter last year.

Lily-Tulip Cup Income Up

The Lily-Tulip Cup Corporation and subsidiaries, for the twelve months ended June 30, 1940, reports a net income of $682,238 after taxes and charges, equal to $3.59 a share on 189,539 common shares, compared with $540,815 after taxes and charges but before hurricane loss of $206,028, equal to $2.85 a share.

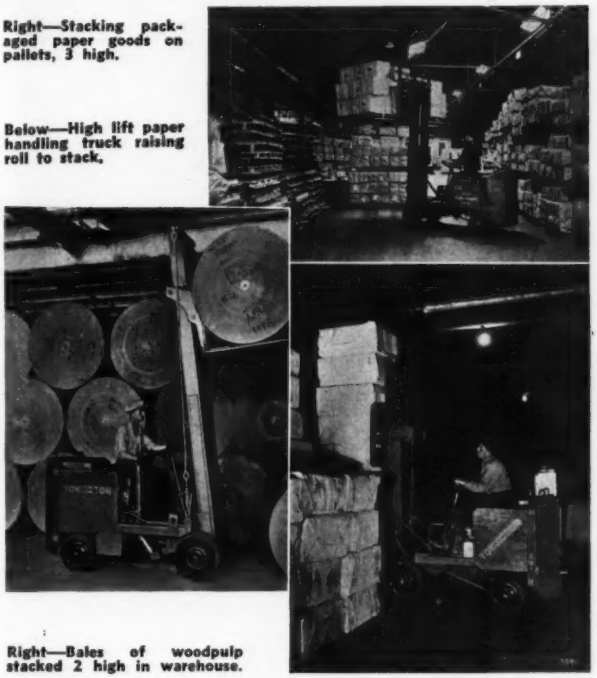
S. D. Warren Nets $199,454

BOSTON, Mass., Aug. 5, 1940—The S. D. Warren Company reported for the six months to June 30, 1940, net profit of $199,454, equal to $1.97 a share. This compares with $139,885, or $1.38 a share, in first half of 1939.

Handling WOOD PULP · ROLLS and FINISHED PRODUCTS

Right—Stacking packaged paper goods on pallets, 3 high.

Below—High lift paper handling truck raising roll to stack.



Right—Bales of woodpulp stacked 2 high in warehouse.

TOWMOTORS CLEVELAND

SAVE MONEY

"Loads and unloads wood pulp at under 4c per ton"—"Piles 300 rolls per day, 20 feet high"—"Stacks load of 36 packages on third tier in 13 seconds." "Saves 40c per ton handling pulp bales."

So the reports come in from all over the country. Owners are saving time, labor and space, setting new lows in handling and meeting today's soaring costs with TOWMOTORS.

TOWMOTORS travel and back faster, lift faster, turn and maneuver faster. Their straight gas power means 24 hour operation at lower costs per ton and lower costs per year.

Find out how TOWMOTORS can save you money in your own plant, on your own handling operations. Write or wire for details NOW.

TOWMOTOR CO.

1220 E. 152d STREET CLEVELAND, OHIO

New TAPPI Members

The executive committee of the Technical Association of the Pulp and Paper Industry has elected the following to membership.

Gerald N. Bates, technical service department, Canadian Titanium Pigments, Ltd., Montreal, P. Q., is a 1931 graduate of the University of Saskatchewan and was formerly with Canadian Industries, Ltd.

Peter B. Borlew, chemist, Nekoosa-Edwards Paper Company, Port Edwards, Wis., is a 1925 graduate of Darmstadt University and was formerly with the Combined Locks Paper Company.

Richard S. Buckley, chief chemist, Fernstrom Paper Mills, Inc., Pomona, Cal., is a 1933 graduate of Washington State College and was formerly with the Everett Pulp and Paper Company and the Puget Sound Pulp and Timber Company.

Kempton Clark, chief chemist, American Seal-Kap Corporation, Long Island City, N. Y., is a 1925 graduate of Yale University and was formerly with Hollingsworth & Vose Company.

Robert B. Colby, chief chemist, Coos Bay Pulp Corporation, Empire, Ore., is a 1935 graduate of the University of Washington.

Fred V. Doutt, chief chemist, Champion Paper and Fibre Company, Canton, N. C., is a 1920 graduate of Ohio State University.

Harold K. Ferguson, president, The H. K. Ferguson Company, Cleveland, Ohio, is a 1905 graduate of Ohio Wesleyan University and was formerly vice president of the Austin Company.

J. Lynne Ferner, assistant superintendent, paper mill, West Virginia Pulp and Paper Company, Tyrone, Pa., is a 1933 graduate of Juniata College.

Karl W. E. Fries, technical director, Rhinelander Paper Company, is a 1940 graduate (Ph.D.) of the Institute of Paper Chemistry and was formerly with the Oxford Paper Company.

Bernard Malkin, chief engineer, paper machinery department, Dominion Engineering Works, Montreal, P. Q., is a graduate of Heriot Watt College.

John E. Parnell, chemical engineer, North Carolina Pulp Company, Plymouth. N. C., is a 1934 graduate of the University of North Carolina and was formerly with the Gulf States Paper Company.

Henry Reeves, Jr., technical service engineer, Hercules Powder Company, Kalamazoo, Mich., is a 1930 graduate of Alabama Polytechnic College.

E. W. Tinker, executive secretary, American Paper and Pulp Association, New York, N. Y., is a graduate of Michigan State College and Yale University and was formerly with the Canadian Pacific Railroad and assistant chief of the U. S. Forest Service.

Robert B. Wolf, Jr., tour engineer, Scott Paper Company, Chester, Pa., is a 1933 graduate of Yale University and was formerly with the Crown Willamette Paper Company and the Soundview Pulp Company.

Ralph Atkins, superintendent, Lee Paper Company, Vicksburg, Mich., is a graduate of the Institute of Paper Chemistry and was formerly with the Container Corporation of America.

Milton R. Bailey, salesman, Bulkley, Dunton Pulp Company, Inc., is a 1927 graduate of the University of Minnesota.

Fred W. Bentzen, superintendent of main laboratory, Kimberly-Clark Corporation, Neenah, Wis., is a 1911 graduate of the University of Wisconsin.

Bernard Blickman, manager, Industrial Div., S. Blickman, Inc., Weehawken, N. J., is a graduate of Cornell University.

C. Rowley Booth, production engineer, J. R. Booth Ltd., Ottawa, Ont., is a 1938 graduate of Queens University.

Lars C. Bratt, technical secretary, Swedish Pulp and Paper Engineers Association, Stockholm, Sweden, is a 1934 graduate of the Royal Technical University of Sweden.

L. N. Conklin, vice-president, Flood and Conklin Company, Newark, N. J., is a 1904 graduate of Princeton University.

Thage Dahlgren, in charge of production control, Gardner Richardson Company, Lockland, Ohio, is a 1924 graduate of Friedrichs Polytechnikum, Goethen in Anhalt, Germany.

James A. Dunlap, steam distribution engineer, Bathurst Power and Paper Company, Ltd., Bathurst, N. B., is a 1939 graduate of McGill University.

David S. Gilmore, chemical engineer, Scott Paper Company, Chester, Pa., is a 1940 graduate of Ohio State University.

Glenn C. Kimble, student, Institute of Paper Chemistry, is a 1937 graduate of Iowa State College.

Gerald G. Johnston, chemist, Waldorf Paper Products Company, St. Paul, Minn., is a 1940 graduate of the Institute of Paper Chemistry.

Carl A. Sholdebrand, sulphite superintendent, Hawley Pulp and Paper Company, Oregon City, Ore., is a 1917 graduate of Darmstadt University and was formerly with the Chemipulp Process Company, D. Jenssen Company, E. B. Eddy Company, Spruce Falls Power and Paper Company, Riordan Company, York Haven Paper Company and Bervik-Ala Company.

Golf Winners at Salesmen's Outing

[FROM OUR REGULAR CORRESPONDENT]

CHICAGO, Ill., August 5, 1940—With "Pat" Patterson, Flambeau Paper Company sales executive and chairman of the Salesmen's Association golf committee, on his vacation it it difficult to piece together the names of the winners at the recent outing. The western division celebrated its third of the summer series at the Bob-O-Link Golf Club on July 19 with about 60 participants out. Bill Tilden, Mead Sales Company, shot a 73 to win the low gross honors. V. D. Obeweiser of the Fox River Paper Company checked in as blind bogey winner. Others who shared in the distribution of prizes were C. F. DeVine of Whitaker Paper Company; T. E. Ward, Bergstrom Paper Company; Courtney Reeves, Allied Paper Mills and a high gross foursome composed of Messrs. Warner, Bently, Buchanan and Brower. Low net foursome honors went to Paul Wesco, Mr. Obeweiser, Harold Leahy and C. Marvin. Low putt prizes found two foursomes in a tie. Chairman Patterson solved the difficulty by giving prizes to all eight participants as follows: A. G. Shannon, H. Stark, Warren Moore, J. Sterling, Bill Tilden, Jack Heyer, F. A. Lenling and W. W. McBride. The next outing will be held at the LaGrange Country Club on Friday, August 23. Inasmuch as LaGrange is the home club of Jim Coy the Chairman is rightfully expecting a novel entertainment program from this source.

R. C. Pierce Surprised

Back in 1890, a young man still in his teens, came to work for the Dalton Shoe Company, operating in the building now occupied by the Stationery Division of Crane & Co., Inc., says the *Village Press* of Dalton, Mass. The shoe company was owned by Winthrop Murray Crane and Zenas Crane. This youngster who started out putting heels on shoes back in the Gay Nineties stayed with the Shoe Company for thirteen years and then was transferred to the main interest of the Crane family —the manufacture of paper, and, in the office of Crane & Co. he has remained ever since. That youth was Reuben C. Pierce and in honor of his fifty years of association with Crane & Co., the main office force of the company did him honor last week.

It was all gotten up on the spur of the moment. Mr. Pierce is a modest man and would never think of mentioning it himself, even if he had realized it. But someone discovered the fact quite by accident last Monday, the office folks all got their heads together and when Mr. Pierce innocently walked into his office, two huge bouquets of flowers greeted him. Also on his desk was a huge cake, suitably decorated and inscribed (or should we say "engraved"). There, also, was a beautiful tray, thermo-jug and glass, gifts from the office folks themselves.

For once Mr. Pierce was speechless—and that, for Mr. Pierce, IS something, believe you me! When he had sufficiently recovered, an armistice with work was declared and forty-five people had a grand time with ice cream and cake with Mr. Pierce the center of attraction as he well deserved to be. Even some of those who once worked in the office were present. When asked by our special correspondent about his surprise party, all Mr. Pierce could say was that he surely was surprised and was very happy and touched at the whole thing. "So much so," he added, "I only wrote three letters all afternoon and one of them I've got to write all over again."

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Powell River Installs Flakt Drier

VANCOUVER, B. C., August 3, 1940—Manufacture and export of high-grade sulphite pulp is now a regular feature of the activities of the Powell River Company and the company has completed installation at its plant at Powell River, B. C., of a new modern Flakt drier on the Kamyr machine; and a Southwark hydraulic baling press.

With the Flakt drier in operation the entire production of sulphite will be confined to the Kamyr machine, where high-grade air-dried sulphite pulp will be produced. The No. 1 machine, which is at present turning out air-dried sulphite, will be transferred to a new product of combined sulphite and groundwood pulp.

The new hydraulic press, used in conjunction with the Kamyr machine, involves greater efficiency in packing and storing.

The ordinary sulphite bale of 450 lbs. and approximately 23 inches in thickness is reduced by the press to a compact 14 inches, a saving of 9 inches of cargo space on each bale.

PAPER TRADE JOURNAL

Title Reg. U. S. Pat. Off.

Henry J. Berger
EDITOR

Vol. 111 August 8, 1940 No. 6

COMING EVENTS IN PAPER INDUSTRY

TECHNICAL ASSOCIATION OF THE PULP AND PAPER INDUSTRY, Fall Meeting, Olympic Hotel, Seattle, Wash., August 20-23.

NEW ENGLAND SECTION. Technical Association of the Pulp and Paper Industry—Third Friday of each month at the Roger Smith Hotel, Holyoke, Mass.

DELAWARE VALLEY SECTION. Technical Association of the Pulp and Paper Industry—Second Friday of each month at the Engineers Club, Philadelphia, Pa.

LAKE STATES SECTION. Technical Association of the Pulp and Paper Industry—Second Tuesday of each month at the Conway Hotel, Appleton, Wis.

KALAMAZOO VALLEY SECTION. Technical Association of the Pulp and Paper Industry—First Thursday of each month at the Park, American Hotel, Kalamazoo, Mich.

NATIONAL SAFETY COUNCIL, PAPER AND PULP SECTION, Annual Meeting, Stevens Hotel, Chicago, Ill. October 7-11.

NATIONAL PAPER TRADE ASSOCIATION, annual Fall Meeting, Stevens Hotel, Chicago, Ill. September 23-25.

HIGHER TAXES

The deterrent effect of the Administration's last effort to impose an excess-profits tax on business operations is creating some apprehension, as a new levy on the profits of ordinary business undertakings, as well as upon industries engaged in armament work, is impending. Congress will presently be called upon to introduce a new excess-profits tax to defray the cost of rearmament and it is this feature of the heavy taxation burden which the country must soon assume that is now the cause of considerable speculation.

The high cost of defense for the current fiscal year with total expenditures of about $12,000,000,000, against a prospective revenue of about $8,000,000,000, is merely a continuation of the mounting cost of Government, which has rapidly expanded under the Roosevelt Administration. In the last ten years Government borrowing has aggregated $26,000,000,000. It amounted to $3,600,000,000 last year and will be approximately $5,000,000,000 this year. Under the New Deal fiscal policy, farm subsidies and pump priming expenditures inaugurated the upward trend in Government costs, which was continued by social security and work relief expenditures. Ten years ago the Administration paid out $3,800,000,000 in cash; five years ago paid out $8,000,000,000 and during the current year will pay out $12,000,000,000.

The New Deal and huge expenditures appear inseparable. For example, ten years ago agriculture received $200,000,000 a year from the United States Treasury and now draws $1,250,000,000. Prior to 1930, there were no forms of relief or social security and these services are now costing $3,600,000,000 a year. Public construction in the past was called a "pork barrel," costing up to $300,000,000 a year. Today, under the name of public works the cost is $1,200,000,000 a year. National defense then cost $750,000,000, and today has risen to nearly $5,000,000,000. But there are other expenses of government, including interest on the public debt. Adding up the remainder of the so-called necessary costs of government the total amounts to about $32,000,000 a day, while last year it was $26,000,000 a day, and ten years ago it was $11,000,000 a day. This peace-time expenditure would rise to an estimated $70,000,000 a day if this country entered the European conflict, or about $25,000,000,000 a year.

Figures such as these may not appear very impressive as such, but when translated into taxes every business firm and individual will soon experience the real meaning underlying Government expenditures and revenue. A substantial part of the revenue required for Government spending during the present fiscal year, which began on Julp 1, must come from taxpayers. Unfortunately, taxation must remain a problem for many years. Representative Robert Doughton, Democrat, of North Carolina, as Chairman of the House Ways and Means Committee, is now working out the details of an excess-profits tax. He is reported to have declared that industry will be given an opportunity to be heard on every point of criticism it may have on the new tax plan. It is also reliably stated that neither the committee nor the President has any idea at the present time of proposing a system of taxation sufficiently drastic to bring federal finances under control. An attempt to raise $12,000,000,000 through taxation would require so great an increase in tax on income that taxpayers would be certain to voice vigorous objections. A balanced budget is likewise not in harmony with the New Deal theory that a deficit is desirable so long as industry is not fully occupied and large number of workers are unemployed.

Taxation for armament is considered an essential part of any industrial mobilization plan, in the opinion of Hirsch, Lilienthal & Company, who add that the "War Department has consistently refrained from submitting any specific war tax provisions on the ground that this is the responsibility of the Treasury Department. The War Department has an attitude," the firm continues, "with regard to all profits taxation: It has always maintained that a tax measure must not impose so much of a burden that the production of munitions and materials might thereby be hampered. It may be interesting to note that there were really two versions of excess profits taxes in use during the World Conflict. One was called 'war profits' tax and was based on the excess

of earnings during the conflict years over the average earnings of the same taxpayers over a base period 1911-1913. The other was called an 'excess profits' tax, and, in the 1918 law, was based upon earnings over and above what was considered a fair rate of return upon capital. The fair rate selected was 8 per cent. The rate of the war profits tax was a flat 80 per cent. The excess profits tax was graduated, and in 1918 carried a rate of 30 per cent on profits ranging from 8 per cent to 20 per cent, and 65 per cent on higher returns. The two forms of tax were alternative, rather than supplementary, the government collecting whichever was the higher."

In pointing out that an excess-profit tax is dependent on business for its effectiveness, Godfrey N. Nelson, lawyer, tax expert and secretary of The New York Times Company, states in an informative article in *The New York Times* of August 4, that "we must recognize the contrast between the industrial situations then and now existing. In 1917, industrial prosperity prevailed throughout the country; both labor and capital were profitably employed—capital was plentiful and flowed freely and without undue restraint or timidity. . . . Business generally had attained such a velocity that almost any tax, however severe, could only have slackened the pace. The business situation today is quite different. Not all industries are operating profitably and a few at capacity; unemployment is still very large. . . . For obvious reasons incentive to invest capital in productive enterprise has lacked enthusiasm. Conservation rather than expansion of capital has prevailed among investors. Present business conditions do not appear to warrant the set-back to which general business would be subjected if the excess profits tax were adopted."

Cuba Imports More Wood Pulp

WASHINGTON, D. C., August 7, 1940 — Imports into Cuba of wood pulp and waste paper for the manufacture of paper and paperboard have shown a continued increase during recent years, according to statistics recently made available by the Cuban Treasury Department. Receipts of dry wood pulp amounted to 25,428 metric tons in 1939, compared with 15,971 tons in 1938 and 9,695 tons in 1937. Imports from the United States during this period have increased from 800 tons during 1937 to 1,113 tons in 1938 and 1,962 tons in 1939.

Imports of wet pulp rose sharply from 91 tons in 1938 to 277 tons in 1939, all of which was supplied by American manufacturers.

Imports of waste papers, paperboard and cordage showed the most striking increase. Receipts during 1939 amounted to 8,008 tons compared with 1,692 tons in 1938 and 1,774 tons in 1937. Essentially all imports of this commodity were from the United States.

The increased import of raw materials for paper making have been reflected in a larger output of domestic paper and paperboard products, especially light-weight kraft wrapping paper and paperboard.

Production Ratio Report

These statistics are based upon paper production reports to the American Paper and Pulp Association.

COMPARATIVE MONTHLY SUMMARIES[1]

Months	1940	1939	1938	1937	1936	1935	1934
January	90.2%	77.5%	63.9%	90.3%	76.1%	65.8%	.....
February	86.2%	81.7%	68.7%	90.1%	77.9%	70.0%	.....
March	83.9%	84.0%	69.6%	90.3%	76.0%	70.5%	.....
April	86.3%	82.9%	68.3%	92.1%	82.3%	70.0%	.....
May	91.7%	80.2%	69.0%	90.6%	81.6%	69.4%	.....
June	94.7%	79.7%	66.0%	87.3%	80.7%	72.3%	.....
July	.....	75.2%	72.0%	81.8%	77.3%	64.9%	.....
August	.....	82.9%	77.2%	82.9%	81.5%	70.9%	.....
September	.....	88.7%	76.3%	78.6%	80.5%	71.9%	58.2%
October	.....	96.6%	82.5%	73.5%	87.6%	75.6%	64.7%
November	.....	97.2%	79.6%	61.9%	88.0%	75.3%	61.7%
December	.....	91.1%	74.4%	54.5%	85.9%	71.2%	59.6%
Year Average.	.....	84.9%	72.3%	80.6%	81.3%	70.5%	.....
First 30 weeks	88.6%	80.3%	68.2%	88.9%	78.8%	68.9%	.....

COMPARATIVE WEEKLY SUMMARIES[1]

CURRENT WEEKS, 1940		CORRESPONDING WEEKS, 1939	
June 22	95.9%	June 24	79.2%
June 29	94.0%	July 1	81.2%
July 6 (Holiday week)	70.8%	July 8	56.3%
July 13	92.4%	July 15	81.8%
July 20	93.0%	July 22	81.1%
* July 27	90.8%	July 29	81.7%

The following statistics show the number of mills reporting by ratio groups:

	Number of Mills Reporting—Current Weeks					
Ratio Limits	June 22, 1940	June 29, 1940	July 6, 1940	July 13, 1940	July 20, 1940	July 27, 1940
0% to 50%	38	28	104	33	35	39
51% to 100%	249	257	184	249	231	205
Total Mills Reporting	287	285	288	282	266	244

PAPERBOARD OPERATING RATIOS

Per cents of operation based on "Inch-Hours" reported to the National Association.

Year	Jan.	Feb.	Mar.	Apr.	May	June	July
1936	62%	67%	67%	70%	69%	70%	69%
1937	80%	86%	86%	88%	85%	77%	66%
1938	54%	60%	61%	57%	58%	56%	57%
1939	60%	67%	71%	69%	64%	67%	63%
1940	71%	70%	69%	70%	76%	79%	....

Year	Aug.	Sept.	Oct.	Nov.	Dec.	Year Avg.
1936	75%	78%	82%	80%	74%	72%
1937	74%	69%	65%	55%	45%	73%
1938	66%	66%	70%	65%	59%	61%
1939	72%	74%	84%	71%	71%	70%
1940	....	....	....	....	....	....

Week end. June 22, 1940—79%
Week end. June 29, 1940—80%
Week end. July 6, 1940—60%
Week end. July 13, 1940—72%
Week end. July 20, 1940—77%
Week end. July 27, 1940—74%

[1] Production-capacity ratios are based upon six-day capacity ratings which are adjusted periodically to correspond with the ratings reported by individual companies. Ratios are subject to revision until all reports are received.

* Preliminary figure.

Bagley & Sewall Double Force

[FROM OUR REGULAR CORRESPONDENT]

WATERTOWN, N. Y., August 5, 1940—Announcement is made here that the Bagley & Sewall Company has virtually completed a large foreign order for cast iron vises. The contract is understood to be the largest received by the concern for such equipment in several years and has necessitated the doubling of the normal working force. The name of the company placing the order could not be learned. The first order was for 2,200 of the vises and it was stated that they are about two-thirds completed. An additional order calling for 1,000 vises has also been placed and this will be rushed to completion. Some of the vises are swivel and other are flat base. An official of the company announced that other business is holding up satisfactorily although competition remains keen. The local concern is among the largest manufacturers of papermaking equipment in the country and control recently passed into the hands of Abe Cooper, of Syracuse, prominent business man.

Drying Spaghetti, at The Foulds Milling Co.

Paper May Be Dried Like Spaghetti . . .

Early paper makers used to dip their deckles into tubs of furnish and hang the sheets to dry in the open air. No doubt they made good paper — but mighty little tonnage. Your job is to make better paper *fast* and cheap. The sheet must be dried in the time it travels from the press to the slitters. This takes steam and steam costs money.

Here is where Hamilton Felts enter the picture. A Hamilton Felt at the wet end of your machine will increase the efficiency of your press and deliver a dryer sheet to the rolls. It will give the paper a better formation and enable you to operate at higher speed with less down time for adjustments. And it will save a lot of steam.

• *From the thinnest tissue to the heaviest board there is a Hamilton Felt that will do your work better, faster and at lower cost.* •

SHULER & BENNINGHOFEN, HAMILTON, OHIO

• **Miami Woolen Mills** •

Hamilton Felts

• **Established 1858** •

Section of the
Technical Association of the Pulp and Paper Industry

Edited by Ronald G. Macdonald, Secretary

Water Vapor Permeability of Paper and Paperboard

TAPPI Tentative Standard T 448 m-40

Scope

This method is for the determination of the water vapor permeability of paper and paperboards. It is considered generally suitable also for other sheet materials.

There may be considerable difference in the permeability of a sheet when the two faces are exposed, respectively, to *(a)* a high humidity on the one face of the sheet and a medium humidity on the other and *(b)* a medium humidity on the one face of the sheet and a low humidity on the other. Hence, the method involves measurement under one or both of these conditions. Where special use requirements are involved, such as with other temperatures or humidity differences, the test conditions may be varied accordingly. In all cases the testing conditions shall be stated fully in the report.

Apparatus and Equipment

1. *Test Dish.* An open mouthed cup or dish of such size and shape that it can be accommodated readily on the pan of an analytical balance. The area of the opening should be as large as practical, an area of at least 30 sq. cm. being preferred.

The test dish must be of such design that a satisfactory seal can be made to prevent leakage of water vapor at or through the edges of the sheet and to define clearly the test area. Suitable designs for the dish with supporting rings and flanges are shown in Figs. 1 to 9, inclusive. Other modifications of these designs may be made, without departing from the principle of preventing edge leakage by means of a complete wax seal.

2. *Template,* for use in defining the test area and effecting the wax seal, consisting of a circular metal disk ⅛ inch thick, made from brass, aluminum, or other suitable metal and having the edge bevelled to an angle of about 45 deg. The smaller diameter of the template must not be greater than the smallest diameter of the cell in contact with the specimen.

3. *Desiccant.* The desiccant must have a powerful affinity for water vapor and a high drying efficiency, that is, a low vapor pressure after absorbing a large amount of water. It must remain essentially unchanged in physical condition and exert, while dry, no chemical or physical action other than dehydration effects on membrane materials with which it is in contact. Anhydrous magnesium perchlorate[1] has been found satisfactory.

4. *Wax,* for sealing the specimen to the testing dish, made up of equal parts of crude beeswax and rosin. This wax clings tenaciously to surfaces and is not brittle at ordinary room temperature.

5. *Petrolatum,* for application to the bevelled edge of the template in order to facilitate removal of the latter after sealing the test sheet to the dish. The petroleum jelly commonly used by druggists is suitable.

6. *Balance.* An analytical balance of 200-gram capacity and sensitive to 0.001 gram.

7. *Tare.* This shall be a blank specimen and dish assembly, similar to the test specimen assembly described under Procedure, except that no desiccant or water is contained in the dish. The purpose of the tare is to minimize in successive weighings the effects of extraneous influences, such as moisture absorption by dish, wax, etc., dust deposits, and changes in density of the confined air resulting from fluctuations in barometric pressure. The tare should be subjected, along with the specimen assemblies, to the conditioning atmosphere.

8. A testing room or cabinet provided with conditioned air, maintained at 21 ± 0.5 deg. C. (70 ± 1 deg. F.) and 65 ± 2 per cent relative humidity, and continuously circulated at a rate not less than 500 feet per minute over the exposed faces of the specimens under test.

9. A suitable grill or reticulated rack in the testing room or cabinet, capable of supporting the inverted specimens in a manner to afford free access of the circulating air.

Test Specimens

The test specimens shall be representative of the material. At least 4 specimens from each sample shall be tested, half being attached to the cell with the wire side out and half with the felt side out.

Procedure

A. Desiccant Method

Place sufficient desiccant inside the dish to cover the

[1] Made by G. Frederick Smith Co., Columbus, Ohio.

sheet area to a depth of at least 15 mm. Cut the test specimen so that its diameter is equal to that of the larger diameter of the template. Place the sheet over the aperture of the dish and center it as closely as possible on the supporting ring or flange. With the tip of the finger apply a thin film of petrolatum to the bevelled edge of the template. Wipe off any petrolatum which may have been deposited on the smaller surface of the template. Center the template, with the smaller surface down, exactly over the specimen and dish opening. Flow molten wax into the annular space surrounding the bevelled edge of the template, using a medicine dropper to dispense the molten wax. Remove the template from the sheet surface as soon as the wax has cooled and solidified.

Weigh the assembly on the analytical balance to 0.001 gram, using the tare. Place the dish on the rack inside the testing room or cabinet in an inverted position so that the layer of desiccant is in direct contact and evenly distributed over the inner face of the test sheet and so that free access of the conditioned circulating air is provided on the exposed surface of the sheet.

Make successive weighings of the assembly at suitable intervals, usually of several hours, until a constant rate of gain is attained. Plot the weight gain against time. The slope of the resulting curve will furnish a measure of the water vapor permeability.

B. Water Method

The use of water inside the dish requires that the test be carried out with the dish in the upright position. As a result there will exist a layer of air between the water surface and the under surface of the test sheet through which water vapor will diffuse at a rate that cannot be measured conveniently. Moreover, any flange or ring projecting from the wall of the disk will influence the direction of the diffusion of the water vapor. The ratio of water-surface area to test-sheet area will also have an influence on the water vapor pressure existing beneath the sheet surface, especially for materials having high permeability. This ratio should be standardized at 1:1 according to requirements in paragraph 1 below.

The procedure for making a test by the water method is exactly as described for the desiccant method except that:

1. The dish is of the type shown in Figs. 7, 8, and 9, with an inside diameter of at least 60 mm.

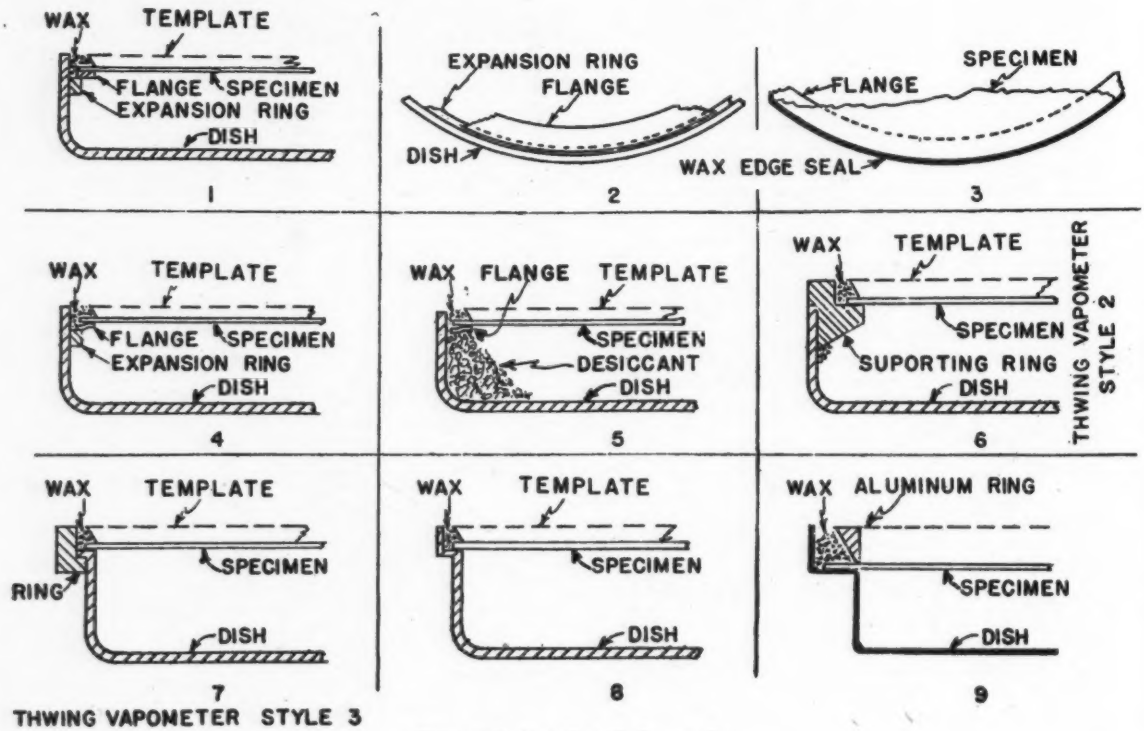
2. Sufficient distilled water is placed in the dish to bring the level of the water to such a height that the distance between the water surface and the under surface of the sheet is 25 mm. A depth of 5 mm. of water will adequately take care of losses by evaporation through the most permeable sheets.

3. The dish is placed in the upright position within the testing room or cabinet.

Report

The water vapor permeability shall be reported as grams per square meter per 24 hours at 21 deg. C. and for a moisture gradient defined by Method A or Method B of the preceding section. The report must state clearly which method was used. The calculation should be made for the period of constant rate of gain or loss[2]. The permeability values shall be reported for each side of the sheet separately, the side designated in each case being that which faced the higher

[2] If, for example, in a test run for 190 hours by Method A on an exposed area of 55 sq. cm. (0.0055 sq. m.), it was found that the rate of gain was substantially constant after 18 hours, and that during the subsequent 172 hours the moisture absorbed by the desiccant was 67 mg., the water-vapor permeability is then (0.067 x 24)/(0.0055 x 172) = 1.70 grams of moisture passing through 1 square meter of the material every 24 hours at 21 deg. C. from 65 per cent relative humidity on one face to desiccant in contact with the other.



Figs. 1, 2, 3, 4, 5, 6, 7, 8, and 9.

humidity in the test. A suitable code designation should be used to distinguish between the two sides of the material, such as Side I and Side II; or when there is an obvious difference between the two sides, such as Side I, waxed and Side II, unwaxed.

Precision

Duplicate determinations should give checks within 10 per cent, depending largely on the variation in the sheet material itself. As the spread between very permeable sheets and those having a low permeability is at least a thousand fold, a precision of 10 per cent on a given material will establish it quite definitely in the scale of permeabilities normally encountered in sheet materials.

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Preparation and Properties of Butanol Lignin

By A. J. Bailey[1]

Abstract

The method of preparing and isolating butanol lignin is described. The physical appearance, solubility, thermal behavior, and molecular weight of butanol lignin are reported. Data on salt formation, carbon and hydrogen content, and data on aldehyde, ketone, methoxyl, and hydroxyl groups, and general chemistry of butanol lignin are recorded.

Introduction

Numerous lignin preparations have been reported in the literature, but physical and chemical properties are often unfavorable or unreported. Lignin isolated by strong acids is relatively insoluble and difficult to study. Newer lignin preparations have appeared but their characteristics are usually not so well known. In view of the tremendous resistance and evasiveness of lignin to determination of its constitution, the properties of all lignin preparations may well be examined with a view toward selecting the less complex and more favorable members for constitutional studies. It is hoped that this description of the properties of butanol lignin will make available to other workers a knowledge of a new lignin preparation which has value in the determination of structure.

The use of aliphatic alcohols to isolate lignin was summarized by Aronovsky and Gortner *(2)* who reported complete analytical data. A patent was issued to Aronovsky *(1)* on the use of butanol as a pulping reagent. Another patent *(4)* disclosed the acceleration of delignification by the addition of alkali to the butanol-water cooking reagent. McMillen *(9)* found that neutral butanolysis was unable to reduce the lignin content of softwood pulp below 17 to 23%. Other articles published presented findings on the existence of a true lignocellulose *(5)* and data on the kinetics and mechanism of the butanol-lignin condensation *(6, 7)*. The present paper reports the method of preparing and isolating butanol lignin, and its chief physical and chemical properties.

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Preparation of Butanol Lignin

Conditions for the condensation of lignin butanol are not critical. Temperatures successfully employed varied from 120 to 190 deg. C.; butanol concentrations varied from 8% (aqueous solutions) to 100% butanol. Acidified digestions resulted in a blackened pulp; neutral digestions dissolved lignin easily leaving a light colored pulp and with the lignin dissolved in the alcoholic layer of the liquor. Neutral digestion liquors became acid due to hydrolyzed acetyl groups, but this slight acidity was not sufficient to cause failure. Alkaline digestions, containing up to 5% sodium hydroxide, greatly accelerated the solution of the lignin, leaving a light pulp and producing a liquor in which most of the lignin was dissolved in the aqueous layer.

Catalysis of lignin solution was shown by alkaline hardwood digestions which achieved delignification in 5 to 15 minutes whereas exactly similar, except neutral, digestions required 4 hours. Hardwoods were virtually completely delignified in either neutral or alkaline solutions, the former merely requiring a longer time. With softwoods in neutral digestions, 37 to 55% of the original lignin remained in the pulp *(9)*, but alkaline digestion removed practically all of the lignin in one half hour.

Although widely different conditions may be used, the following method is recommended as simple, rapid, and convenient.

Procedure: One hundred grams of wood, one liter of water, one liter of butanol, and 40 grams of sodium hydroxide were placed in the autoclave and heated to 155-160 deg. C., for one to four hours. After cooling, the contents were removed and the pulp filtered off on the suction funnel. The filtrate formed two layers, the upper (alcoholic) layer being a light brown and the lower (aqueous) layer containing most of the lignin as a dark brown solution. The separation of the lignin from the other constituents is described later.

If the original cooking liquor was neutral, the lignin in the final liquor was dissolved entirely in the alcohol layer, making it almost black. The water layer underneath was usually only slightly colored. Quantitatively, in a first cook of four hours with aspen, 63% of the solids remained in the alcohol layer and 37% in the water layer. In a recook of this with fresh liquor, 43% was found in the alcohol

and 57% in the water; the alcohol-soluble material was less because of the reduction in the rate of the delignification reaction. Removal of the lignin from the alcohol layer reduced the dissolved solids almost to zero. Practically all of the solids in the water layer were converted into phenylhydrazones without preliminary hydrolysis. Consequently, almost quantitatively the lignin remained in the alcohol and simple sugars in the water.

If the original cooking liquor was alkaline, the separation of alcohol and water layers was the same. The lignin, however, occurred chiefly in the water layer although enough lignin was dissolved in the alcohol to color the solution a light brown.

Recovery of Lignin from Solution

Since the filtered solution consisted of butanol, water, sodium hydroxide, sodium lignate, and sugars, the separation of the lignin was necessary. The following method was used.

Procedure: The filtered liquor was distilled until foaming commenced. After cooling, the liquor was filtered and any precipitated lignin was dissolved in dilute (1%) sodium hydroxide, filtered, and added to the main portion of the liquor. Thirty-six % hydrochloric acid was added while stirring rapidly until the normality was in the range of 0.1 to 1.0 *N* in acid. The precipitated solution was then filtered slowly on the suction funnel until the filtrate cleared, and the cloudy filtrate and remaining liquor filtered. The filtered lignin was redissolved in dilute alkali and reprecipitated with acid several times, and finally dialyzed. The purified lignin was fully air-dried before oven-drying to avoid melting and darkening.

Lignin from neutral digestions was isolated in the same manner after first making the solution slightly alkaline. During distillation, the temperature rose until the composition of the constant boiling mixture was obtained. Practically, removal of all undissolved butanol followed soon after; presence of free alcohol prevented foaming, hence, the appearance of foam was a reliable guide for stopping the distillation. If the alkaline solution of lignin was concentrated too much, lignin was thrown out as a viscous, taffy-like material resembling dark brown leather in appearance. Removed from the flask and allowed to cool, it became a hard but extremely brittle resin. If it was stretched during cooling, it formed fibers of various sizes, some as fine as asbestos. Similar but poorly-formed (and isotropic) fibers were sometimes formed if the precipitated lignin was allowed to cool in the saturated mother liquor. Isolation of the total lignin necessitated complete solution of the undissolved lignin before precipitation by acid. Dilution of the alkaline liquor resulted in complete solution of the dissolved lignin in all cases.

Precipitating conditions other than those specified above sometimes gave colloidal precipitates which it was impossible to retain on a filter. Best results were obtained by using a cool, almost saturated solution of lignin so that after precipitation a soupy consistency was approached.

No difficulty was experienced in freeing the lignin from carbohydrates. Formation of phenylhydrazones indicated their presence as simple sugars. The above procedure removed all traces by reprecipitating, and the dialysis served as an effective safeguard against retention. Sugars were also removed from unpurified lignin by dissolving in butanol and extracting with water, as well as by dissolving in dioxane and precipitating by pouring into a large volume of water.

Physical Properties

Appearance

The physical appearance of butanol lignin varied somewhat with the conditions of isolation, drying, age, and origin. Highly purified western hemlock and aspen lignin were very light tan amorphous powders. If oven-dried at high moisture content, the lignin invariably darkened to a black briable solid. When melted, it cooled to a glistening black resin. Lignin isolated by separating the alcohol layer of a neutral cook and evaporating to dryness, became progressively a thick, dark brown syrup, a dark brown thermoplastic tar, and an almost black friable resin. Butanol lignin, isolated from nine genera and thirteen species (those reported by McMillen *(9)*, varied in appearance from yellow crumbs which filtered easily on a glass funnel without suction and dried quickly to a fluffy yellow powder, to a dark brown gel which was filtered with the greatest difficulty, and required almost a week to air-dry to a jet black friable resin. Although usually gelatinous when precipitated, mechanical agitation in water failed, in all cases, to restore hydrophilic properties; hpdrophobic sols invariably resulted. Physical appearances of precipitated lignin from different woods seemed to bear no generic relation to the parent woods or even a genetic relation to angiospermous or gymnospermous origin. Finely powdered aspen lignin showed definite darkening after several weeks exposure to diffused daylight very much as freshly cut wood darkens. It is not known definitely, but due to similarity in chemical properties of the different preparations, it is not believed that these physical differences necessarily indicate chemical differences.

Solubility

Butanol lignin from aspen *(Populus tremuloides)* is soluble in a number of solvents, the ease, and perhaps the extent, of solubility being dependent on the method of dissolving. For example, boiling in butanol dissolved large quantities yet shaking the dried powder in butanol at room temperature caused only slight to moderate solution. Shaking the dried powder in a solvent at room temperature or stirring it into a melted solid resulted in the approximate classification given in Table I.

TABLE I.—SOLUBILITY OF TOTAL BUTANOL LIGNIN (ASPEN)

Insoluble to very sparingly soluble	Sparingly soluble to moderately soluble	Moderately soluble to extremely soluble
Water	Methanol	Dilute sodium hydroxide
Dilute hydrochloric acid	Ethanol	Cold conc. sulphuric acid
Dilute sodium bicarbonate	Butanol[1]	Dilute sodium carbonate
Petroleum ether	Triethanolamine	Glacial acetic acid
Mineral oil	Butyl acetate	Ethyl cellosolve
Chloroform	Benzene	Phenol
Carbon tetrachloride	Xylene	Benzyl alcohol
Carbon disulphite	Nitrobenzene	Vanillin
Trichlorethylene	Turpentine	Salicylic acid
Acetone		Benzaldehyde
Ethyl ether		Aniline
Amyl alcohol		Beta napthol
Ethylene glycol		Dioxane
Glycerol		Pyridine
Ethyl acetate		Furfural
Acetic anhydride		Camphor
Naphthalene		Borneol
Cyclohexanol		Sulphur

[1] Sharp and absolute differentiation into solubility groups was impossible due to the influence of the method of solution upon the solubility. Dissolving at the boiling point would result in the classification of butanol lignin in butanol as moderately to extremely soluble. Other solubilities are similarly qualified. Organic solvents appeared to be inert, rather than reaction solvents.

The solubility of butanol lignin offers a possible means of fractionation often employed on other preparations. A concentrated solution of butanol lignin in dioxane when poured into a large volume of water, precipitated a voluminous light brown gel which was

easily filtered off. Behavior of solutions of butanol lignin in other solvents was similar and normal in every respect.

Melting and Boiling Points

Like many similar materials, the melting point was indefinite. In the presence of free water, the freshly precipitated lignin melted at about 40 deg. C. After drying, the melting point was about 120 deg. C., while decomposition began before the boiling point was reached. Dry distillation at the minimum pressure of a Cenco Hyvac pump yielded products generally similar to those from the dry distillation of wood, decomposition occurring with no true distillation. Thermoplasticity appeared to be a permanent property of the lignin with no tendency toward thermosetting. Cooling invariably produced a friable resin.

Molecular Weight

The adequate solubility of butanol lignin made possible the determination of molecular size. Solvents which were employed included camphor, borneol, beta napthol, phenol, vanillin, salicylic acid, ethanol, dioxane, and ethyl cellosolve. Camphor, borneol, and vanillin appeared to dissolve the lignin but the presence of minute particles in the melted solvent was the basis for disregarding the results. Salicylic acid was a good solvent but determinations of the molecular weight of vanillin as a known gave values which were double the actual value. Phenol was also a good lignin solvent but suffered from a lack of sharpness in the melting point when lignin was dissolved in it. Ethanol, dioxane, and cellosolve were employed in the method of Menzies*(10)* by measuring the reduction in vapor pressure of a solution. Ethanol did not have sufficient solvent properties while it was impossible to purify the dioxane or cellosolve sufficiently for reliable results, since the method is extremely sensitive to even slight fractionation of the solvent. Beta napthol appeared to be the best solvent, considering solubility and cryoscopic constant, and determinations were made by dissolving approximately 3 parts of lignin in approximately 100 parts of beta napthol and determining depression of the freezing point in a sealed capillary with a Beckmann thermometer. Check determinations on vanillin, phenol, and salicylic acid indicated an accuracy of —12% to +15%. Determinations of the molecular weight of lignin from western hemlock and aspen gave the most probable value as 420 ± 14%.

Chemical Properties of Butanol Lignin

The solubility in organic solvents, already tabulated, pointed strongly to aromatic constitution; insolubility in sodium bicarbonate and solubility in sodium carbonate suggested a phenol. The tentative conclusion of a phenolic nucleus was strengthened by the tremendous solvent action of a hydroxyl group. Butanol lignin was more than 99% insoluble in benzene but completely soluble in phenol and beta napthol, and extremely soluble in other phenolic compounds. The aliphatic hydroxyl of butanol and benzyl alcohol gave rise to good solubility, but inferior to that of the phenols. Cyclohexanol dissolved almost none of the lignin.

Salts

Butanol lignin formed both soluble and insoluble salts, presumably phenates. Those of lithium, sodium, potassium, ammonium, and vanadium were soluble and formed coffee-colored solutions. Insoluble salts included aluminum, barium, calcium, cupric, ferric, ferrous, lead, magnesium, mercuric, uranium, and zinc.

Elementary Analysis

Due to difficulty in handling large quantities of wood in digestion, and large quantities of lignin in filtration it was impractical to prepare batches of lignin larger than 150 grams. Individual batches were each reprecipitated several times and dialyzed. Efforts to demonstrate heterogeneity of the purified lignin by precipitation and by partial solubility failed. It therefore was assumed that different batches of lignin were identical except for ash content. The purest batch of lignin prepared had been dialyzed about four weeks and gave 0.4% ash on ignition. On combustion it gave a C content of 60.81, 60.71, and 60.75% and a H content of 6.51, 6.65, and 6.40%. The second batch of lignin which had identical purification but only one week of dialysis gave 1.1% ash on ignition and had a C content of 62.71 and 62.33% and a H content of 6.26 and 6.34% (all figures without correction for ash). Correction for ash would, of course, increase the difference. In view of the variations in elementary analysis of the different batches, it was deemed necessary to suspend work on the elementary composition until the heterogeneity of the lignin was exhaustively examined. This work has been largely completed and will soon be reported.

Functional Groups

Absence of an aldehyde group was demonstrated by failure to form a bisulphite addition compound, a napthylammonium salt (Schiff's base) with beta napthylamine *(3)*, a phenylammonium salt with aniline hydrochloride, or a phenylhydrazone with phenylhydrazine. Solutions of lignin were so dark in color as to prohibit use of the fuchsin test. A ketone group was also absent since a phenylhydrazone was not obtained with phenylhydrazine nor a mercaptal by treatment with ethyl mercaptan according to the method of Wolfrom and Georges *(12)*. Methoxyl was present to the extent of 18% as determined by the TAPPI Standard T 2 m-34 *(11)*. Hydroxyl was also present since methylation with dimethyl sulphate raised the methoxyl content to 31.6% Remethylation failed to raise this value. In view of the uncertainty of chemical homogeneity, as shown by the variations in C and H analyses, no final significance is attached to these percentages.

Numerous reactions of phenols were shown by butanol lignin. Chlorination with phosphorus pentachloride replaced all hydroxyls with chlorine since complete insolubility in dilute alkali resulted. Heating with zinc dust removed most of the hydroxyl as only a small portion remained alkali soluble. Quantitative acetylation was accomplished with a zinc chloride catalyst.

Other reactions have been studied in varying degrees. Extensive work was completed on oxidation using air, permanganate, nitric acid, and chromic acid, with the hydroxyl both free and protected by methyl or acetyl groups. In the various oxidations and also in fusion with potassium hydroxide, the products of reaction consisted of either unchanged

or only slightly modified materials resembling the original lignin in physical properties and solubility, or of greatly degraded products, with no intermediate compounds, or at best, only traces of intermediate compounds. In many cases violent reaction began above a definite temperature; cooling or dilution stopped the reaction entirely, regardless of how carefully it was done. The critical point was extremely sharp, with extreme reactivity above and characteristic inertness below. It appeared that the lignin was either largely unattacked or if attacked, was decomposed to such products as oxalic acid or carbon dioxide (both of which were identified as oxidation products) which told little or nothing about the original material. In addition, small quantities of oils or resinous materials were formed, often in mixture. All had a characteristic acrid odor, were high boiling, and presumably polymeric. Due to the small quantities available, the similarity in solubility, and decomposition somewhat above 200 deg. C. vacuum distillation and other methods failed to effect separation.

In conclusion it is to be noted that the entire lignin in wood was converted into butanol lignin almost quantitatively, since pulps which had lignin contents of less than 1% were commonly obtained. More than 99% of the lignin from aspen was soluble in dilute sodium hydroxide and was precipitated almost quantitatively by acidification. Consequently, virtually the entire lignin in wood was converted into an easily isolated product, one of the few lignin preparations known which can be isolated almost quantitatively as a reaction material possessing good solubility. Consequently, data on physical and chemical properties of butanol lignin apply to the entire lignin, in contradistinction to many of the lignin derivatives described in the literature. Due to the poor solubility of most lignin preparations, the best results attainable frequently are based on a small fraction of the lignin, as for example the 2 to 12% fraction of sulphuric acid lignin which is soluble in methanol *(8)*. The same authors record that alkali-ethanol lignin and methanol-hydrochloric acid lignin represent one third to one half of the total lignin. Similarly, much of the information on lignin has been obtained from fractions as small as several per cent which has limited value in considering the constitution of the entire lignin. The almost quantitative condensation of lignin by butanol, the good resultant solubility, reactivity, and uniform behavior are, therefore, properties unique among lignin preparations.

It is hoped that this progress report will be of value to other lignin chemists. Intensive work on the purity of homogeneity or butanol lignin is nearly completed and other work on derivatives is under way.

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TAPPI Notes

The Constitution and Bylaws of the Technical Association of the Pulp and Paper Industry have been approved by the membership by mail ballot.

The Chesapeake-Camp Corporation of Franklin, Va. and the Hawley Pulp and Paper Company of Oregon City, Ore., have become corporate members of the Technical Association.

The Socony-Vacuum Company of New York, N. Y., has become a sustaining member.

Merck & Co., of Rahway, N. J., has recently issued a useful graphic representation of the complete scheme for the separation and identification of the common chemical elements. Copies may be obtained from that company on request.

E. K. Stilbert, recently graduated from the New York State College of Forestry is now in the Cellulose Division of the Dow Chemical Company, Midland, Mich.

Arthur A. Coffin has been transferred from New York to the Chicago branch of the Titanium Pigment Company, 104 South Michigan Ave.

Erland Waldenstrom, formerly with Korsnas Sagverks A/B is now with Sveriges Industriforbund, Stockholm 16, Sweden.

L. H. Reed has been transferred from the York Haven, Pa., Division to the Marinette, Wis., Division of the Southern Kraft Corporation where he is mill manager.

Henry J. Allison, Jr., recently graduated from the Institute of Paper Chemistry, is now in the Development Department of the Mead Corporation, Chillicothe, Ohio.

F. J. Sebeste is now with the National Biscuit Company, Carton Division, Marseilles, Illinois.

Ralph W. Kumler, formerly of Bennett, Inc., is now with the American Cyanamid and Chemical Company, New York, N. Y.

Matthew F. Healy, Jr., recently a student at the N. Y. State College of Forestry, is now chemist for the Champion Paper and Fibre Company, Canton, N. C.

Andreas Christensen, formerly with the British Columbia Pulp and Paper Company, is now with the Spruce Falls Power and Paper Company, Kapuskasing, Ont.

H. S. Foley Heads Powell River Co.

Vancouver, B. C., August 3, 1940—Harold S. Foley has been elected president of the Powell River Company, largest individual plant newsprint producers on the Pacific Coast. He succeeds S. D. Brooks, who becomes chairman of the board of directors. The change was announced following the recent annual meeting of the company at its head offices at Vancouver, B. C. Mr. Foley has been executive vice-president of the company for the past number of years.

Directors elected for the ensuing year are: S. D. Brooks, H. S. Foley, R. Bell-Irving, G. F. Laing; J. H. Lawson; J. Falconer; P. A. Brooks; Edward Brooks; J. G. Sample; J. S. Foley and R. H. Scanlon.

R. Bell-Irving and G. F. Laing were elected as vice-presidents of the big company which gives its name to the town of Powell River, where its plants are located. J. H. Lawson continues as secretary and J. Falconer as treasurer.

A Time-Temperature Control for Sulphite Digesters*

By John F. Inderdohnen[1]

Abstract

The trend in sulphite mills is towards closer control of digester cooking temperatures for increased quality and greater uniformity of product. In this paper a new recording and controlling potentiometer instrument is considered and its mechanical and operating principles explained. The instrument eleminates the complicated moving mechanisms usually employed in instruments of this type. It is accurate and sensitive and its ruggedness renders it adaptable to applications in the pulp and paper industry where potentiometer type instruments have heretofore not been considered suitable.

The operation of a time-temperature process control on a digester and advantages secured are discussed.

The importance of accurate reading of temperatures in sulphite pulp digestion has been generally recognized and has had considerable study from various angles. Recording thermometers of the bulb and tubing, pressure-actuated type having vapor tension, gas, and mercury filled systems have been in use for more than 30 years to guide the cook in digester operation.

With the introduction of liquor circulating systems more uniform temperatures were obtained throughout the digesters, and systems of automatic control of the liquor temperatures were experimentally installed.

* Presented at the Annual Meeting of the Technical Association of the Pulp and Paper Industry, Roosevelt Hotel, New York, N. Y., Feb. 19-22, 1940.

[1] Engineer, The Bristol Co., Waterbury, Conn.

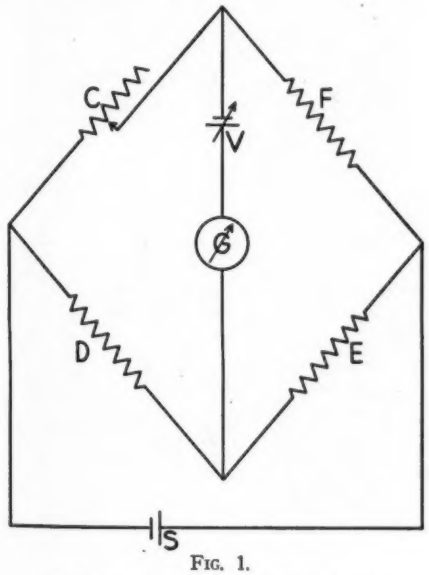

FIG. 1.
Basic Bridge Circuit of the Potentiometer

Then the need for more accurate, sensitive temperature measuring equipment became apparent.

McGregor, Kelly, and Heuer *(1)* state: "Probably no single variable is more important in digester operation than temperature . . .

"The problem of digester temperature measurement brings up a question of measurement of a variable which . . . . is so intimately tied up with resultant quality of product that any effort to make this an absolute measurement is well spent . . . .

"It would seem apparent then that pulp and paper manufacturing plants are confronted with thermometer adaptation problems which can be minimized only by choosing an instrument which will insure the greatest applied accuracy, is stable, rugged, and easily calibrated."

Porter states *(2)*: "The digesters are cooked to time and temperature alone. Our experience with these (earlier type) instruments produced the firm conviction that to gain and maintain the desired uniformity from cook to cook, new and better instruments would have to be used."

Potentiometers Available for Industrial Use

Potentiometers have long been recognized for their accuracy when properly operated and have found wide usage in such industries as the heat treatment of steel. The strip chart, potentiometer-type pyrometers and resistance thermometers have not been readily adaptable to pulp and paper mill usage because of their lack of sturdiness and the inconvenience of the chart rolls.

The round-chart recorders and controllers in the potentiometer field have heretofore been patterned after the strip-chart instruments, with all their continuously moving mechanisms, fragile suspensions, necessity for frequent lubrication, and susceptibility to corrosion at critical points by fumes and moisture encountered in pulp and paper mills.

As McGregor, Kelly and Heuer wrote *(1)*:
"Its main disadvantage lies in the fact that the recorder is quite complicated" in their discussion of potentiometer adaptability.

For the past 2 years a potentiometer has been available which overcomes these objections on such diversified applications as sulphite digester time-temperature process control, continuous pulp bleacher temperature control, recording of sulphur burner temperatures, recording paper machine speeds, and latterly hydrogen ion concentration recording and control.

Operating Principles

The potentiometer principle shown in Fig. 1 is based on having a known potential from a standard cell *S* in a standardized circuit. Against this is balanced the unknown potential *V*, as from a thermocouple, by adjusting a variable resistor *C* until no current flows

through the bridge circuit to deflect the galvanometer pointer *G*.

Resistors *D*, *E*, and *F* are of fixed values, and *C* can be calibrated to read directly the potential across *V*, or temperature direct where *V* is a thermocouple circuit.

In Fig. 2, the jewel pivoted galvanometer, heavily damped and with contacts at the end of its short rigid pointer *G* is shown. Any unbalance in the potentiometer unit circuit causes the galvanometer to deflect. The high resistance resulting from the slight contact pressure at the end of the pointer *G* causes current from the low voltage rectifier unit to flow through the galvanometer in the same direction as that causing the unbalance in the potentiometer circuit. This makes a solid metal to metal contact at the end of the galvanometer pointer.

The circuit so closed operates a relay, R_1 or R_2, depending on the direction of the galvanometer deflection. This opens one side of the line to a continuously energized, double wound, dynamically braked motor *M*. The motor shaft is directly connected to the slide wire adjusting contact *T* as well as to the recorder penarm *P* and to the control actuating arm in automatic controllers. The result is a direct reading on the chart and instantaneous response of the controller, whenever the galvanometer deflects, the slide wire adjusting contact moving to bring the circuit to balance.

Whenever the circuit to the adjusting motor is energized a relay takes the rectifier current off the galvanometer circuit. If the adjustment produced a balance, the galvanometer pointer *G* no longer deflects, and no further adjusting parts move until there is a new unbalance, and the galvanometer pointer again deflects. If the initial unbalance is so great, that it was not completely corrected for on the first adjustment, the system is instantly reactuated until balance is attained.

To eliminate the standard cell ordinarily used as a voltage constant, this system utilizes the standardizing unit shown. Here the current flow through the bridge circuit is accurately measured by a milliammeter and adjusted at *A* to the correct value which is clearly shown as an exact mark on the scale. The capacity of the battery used is so high and the current flow so low, that infrequent adjustments are needed. In resistance thermometers this unit also is eliminated.

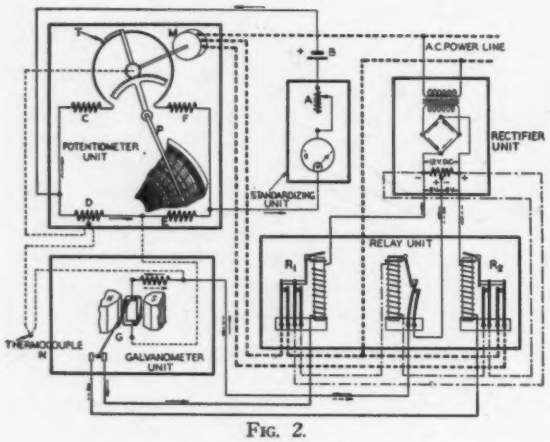

FIG. 2.
Principle of Operation

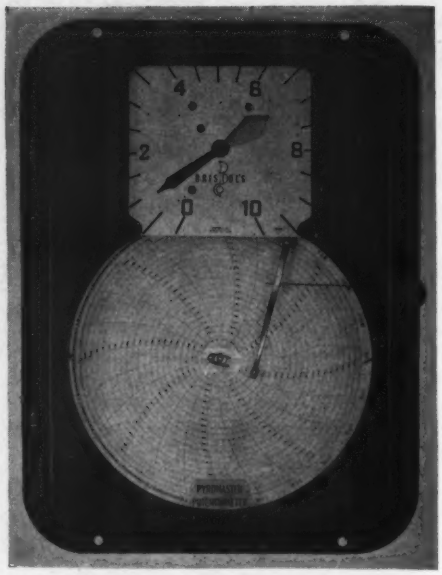

FIG. 3.
Recording Pyromaster With Indicating Scale

Advantages Obtained

This system of potentiometer readings, therefore, eliminates the usual continuously moving mechanism which requires frequent lubrication and is made inoperative when not regularly serviced or by slight corrosion of vital parts. There are no delicate galvanometer suspensions to break or give erratic readings due to plant vibrations. The result is a practical, rugged mill instrument which instantly responds to

FIG. 4.
Portable Pyromaster

minute changes in the measuring circuit yet registers accurately even under extreme vibration.

The apparatus is enclosed in a moisture- and fume-proof aluminum alloy case. As a wall or panel instrument (Fig. 3) it is interchangeable in appearance and mounting with standard recording pressure gages, flowmeters, and thermometers. It is also available as a portable model with carrying handle and adjustable feet (Fig. 4) and is supplied with a large dial indicator at the top so as not to interfere with the reading or changing of the recorder chart.

This potentiometer can be used in any location or mounting, where a standard gage or capillary connecting tubing and bulb type of thermometer is feasible. It is more convenient where long lengths of thermometer tubing would be required, as wire leads are used between the thermocouple or resistance bulb sensitive element and the instrument. The sensitive elements and leads are easily repaired or separately replaced if damaged mechanically or by corrosion.

It is ideal where a restricted temperature range is desired, being available in ranges as low as 20 deg. F. or such as 130-145 deg. C. across the chart scale.

The instrument is also made as a multipen recorder, either with two potentiometer temperature recording systems or with temperature and pressure recording pens on the same chart. Hand switches are supplied on some installations to permit checking or recording from any of several stations.

Sulphite Digester Control

The potentiometer has been installed in several sulphite pulp mills to replace recording pressure system thermometers previously used. The single-pen recorder has generally been furnished as a resistance thermometer with a range of 50-150 deg. C. The bulb is furnished in a closely fitted stainless steel socket for installation in the digester. Three conductor rubber covered no. 16 copper wire cable is used between the sensitive bulb and the instrument and can be lengthened or shortened as required.

Many mills prefer the 2-pen recorders, with one bulb near the bottom and one at the top of the digester for a closer check of operating conditions. The installation of four or more bulbs in a series-parallel circuit is possible with the potentiometer. Connected through a manual switch they can be read individually or their average temperature recorded on the chart.

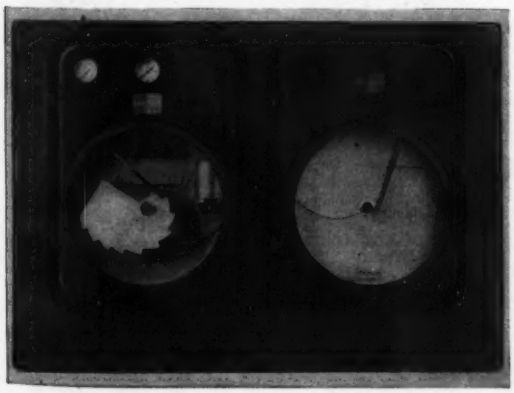

FIG. 5.
Time Temperature Controller for Pulp Digesters

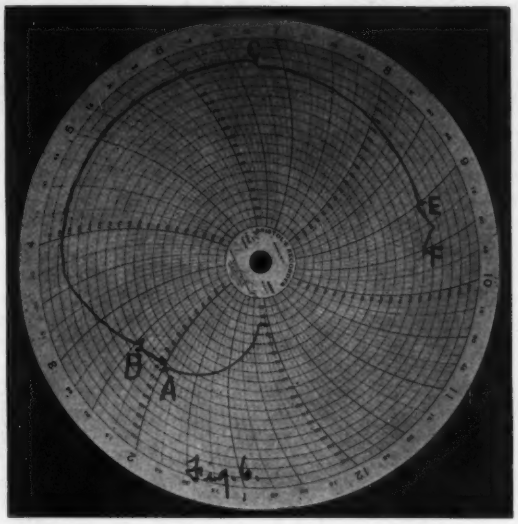

FIG. 6.
Typical Operation Chart

Another possibility is the double-range instrument where one scale would cover the entire cooking range from room temperatures or below to 150 or 160 deg. C., and an additional pen would give magnified readings to cover the whole chart scale with a range of 130-150 deg. C. for extra close readings.

The most advanced installations made provide complete automatic control of digestion temperatures. Such control, however, is adapted only to digesters which are either indirectly heated or which have good circulating systems with direct steam heating. Without good forced circulation the temperatures throughout the digesters tend to be spotty, and automatic control on a temperature basis would probably not work very well.

For the circulating system controllers the same basic potentiometer resistance thermometer is used. The sensitive bulb is placed either in the circulating liquor line at the outlet of the heater or in the base of the digester in the path of the entering circulated liquor.

In the time-temperature controller an aluminum alloy disk, printed to correspond to the recorder chart, is furnished in a case to correspond to the recorder and adjacent to it (Fig. 5). The disk is cut with a pair of scissors to the control curve desired by the engineer or sulphite superintendent. It is mounted like a recorder chart on the shaft of a synchronous motor. A cam follower rides the edge of the disk and resets the control point of the air operated controller continuously to agree with the control curve as cut. The associated control mechanism and the readings of the potentiometer maintain a control of the liquor temperatures exactly as specified for the digester requirements.

Operating Results

As mentioned above, Porter says in his paper *(2)*: "The digesters are cooked to time and temperature alone." He further states:

"If the cooking time is set at 10 hours, the time to maximum temperature at 4 hours, a set pressure schedule followed, the only variation from cook to cook is in maximum temperature used. When cooking spruce under the above conditions, the maximum

temperature is 140 deg. C. if the free SO_2 in the acid is 3.30 per cent, and 133 deg. C. if the free SO_2 is 5.10 per cent." Figure 6 shows a reproduction of a typical chart-record of operating conditions and results from an installation of one of these time-temperature potentiometer controllers in operation for more than two years in a midwestern sulphite pulp mill on a digester. From the start of the cook to point *B*, low pressure steam was used to heat the circulated digester liquor in an indirect heating system. Up to this point no control is used, the steam being admitted through a hand valve which is wide open.

At *B* the heating rate of the low pressure steam has decreased to the point where it was shut off and the automatic control started. This operates on the high pressure steam line. The digester liquor temperature was under automatic control from *B* on the chart-record to point *C*. Here the steam was shut off and the temperature drop in the curve to *E* is due to digester relief operation plus some radiation loss. At *E* direct steam was added to the digester to build up pressure for blowing. At *F* the digester is blown.

An interesting point in the operation routine is shown at *A* on the record. Here the operator turned the switch provided in the instrument for an accuracy check. This substitutes a standardized resistance in the potentiometer circuit, and when the instrument is operating accurately the pen records on the center chart line. The record shows that the pen followed the chart time arc exactly and correctly checked on the center chart line. This feature provides for quickly checking the instrument accuracy at any time.

Another favorable experience is the lack of upkeep attention required by this new potentiometer recorder and controller. An installation of conventional thermocouple potentiometer recorder-controllers is used on other digesters in the plant, where the instrument giving the results as shown on the chart (Fig. 6) is used. These other instruments are regularly checked and lubricated by an experienced instrument man at least once a month. The potentiometer system controller discussed in this paper does not require this attention. This is an important consideration in mills not set up for servicing instruments.

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Determination of the Bleach Requirement of Wood Pulp*

By Charles M. Koon[1]

Abstract

A method is proposed for the determination of the amount of calcium hypochlorite bleach required to produce a pulp of specified brightness. Experiments which were involved in the development of the method and which provide some data in regard to the effect of temperature on the determination are described.

The need for an accurate and convenient method of predicting the amount of chemical required to bleach a pulp to a desired brightness value has long been felt by the wood pulp industry.

Although the permanganate number and chlorine number determinations give valuable information as to the relative amounts of noncellulosic materials present, their correlation with bleach requirement is not sufficiently exact, particularly when pulps of varying history are involved, to supply the bleach plant operator directly with the basic information which he needs. Other methods are used in mill laboratories, and some have been reported in the literature, which are based upon the use of bleach liquor, but most of these involve merely a measurement of the rate of reaction under arbitrarily chosen conditions, with little attention being paid to the actual effect on the color of the pulp. These methods which do attempt to specify the degree of color improvement have been so handicapped by the lack of a suitable instrument for determining it that their advantage over the reaction rate measurements is sometimes questionable. West *(1)* has prepared an extensive bibliography of the procedures which have been proposed along these various lines.

Estimating Bleach Requirement

A series of reports on the measurement of light reflectance and transmittance by various means have been published. One of these *(2)* discusses the adaptability of the reflection meter as a color analyzer.

A method used in one laboratory *(5)* calls for the application of calcium hypochlorite bleach to a series of pulp specimens under fixed conditions of temperature and consistency. In this series, the amount of bleach added to successive samples is varied in even increments over a range which, it is estimated, will include the value required to effect a desired brightness. After exhaustion of the bleach, the pulp is washed, hand-sheets are formed, and the brightness values are determined by means of the reflection meter. By plotting brightness against percentage of bleach, a smooth curve is obtained, from which the amount of bleach required, under the laboratory conditions, for any brightness value in the range covered can be estimated.

This method has been found to be reproducible. The degree to which it correlates with the commercial bleaching behavior of the pulps on which it is used naturally depends upon the degree of similarity between the mill bleaching and the laboratory bleaching conditions. For example, the absolute bleach requirement values obtained by this one-stage, low consistency procedure could not be expected to be numerically equal to the amounts used commercially in a multistage process. It is, however, a direct

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measurement and is not subject to as many extraneous factors as other methods which are used for the same ultimate purpose.

The principal drawback of the method has been the amount of time required for the completion of the bleaching reaction. In extreme cases, when hard bleaching pulps and high brightness values are involved, 24-hr. bleaching periods have not been uncommon. Such a procedure could not be considered for routine mill testing of such pulps, and would be cumbersome even for research purposes. In view of the potential advantages of the method, therefore, various means of accelerating the reaction have been considered. The idea of using an excess of bleach, as suggested by the Poppe method *(3)*, was tried briefly, but the errors involved in back titration discouraged further attempts. The use of catalysts was suggested, but the memory of the color effects produced when certain of them, such as copper, had been present accidentally in bleaching experiments did not stimulate investigation along these lines.

Effect of Higher Temperatures

The effect of temperature, however, did seem worthy of consideration. The use of higher temperature would accelerate the reaction, would involve very little modification of the original procedure, and would introduce no new manipulative errors. There remained to be determined, therefore, the actual effect of elevated temperatures upon reaction time and upon brightness.

The bleach requirement values of two experimental sulphite pulps for 78 brightness were first determined by the method at 40 deg. C. The amounts of bleach so determined were then applied to additional samples of the same pulp at 45, 50, 55, and 60 deg. C., respectively, the reactions were allowed to go to exhaustion, the elapsed time recorded, and the brightness values measured by means of the reflection meter. The results are shown in Table I. The samples were designated as T1A and T3B.

It will be observed that increasing the temperature from 40 to 55 deg. C. decreased the reaction time from 16 and 22 hr., respectively, to 3.5 hr., and decreased the brightness from slightly over 78.0 to 77.4. The striking similarity in brightness decrease was probably due to the fact that the previous histories of the two pulps were fairly comparable.

Increasing the temperature to 60 deg. C. effected a further decrease in reaction time, but the losses in brightness were out of proportion to the time saved. In view of the favorable results obtained at 55 deg. C., additional experiments were performed on other pulps of varying history, including a semibleached kraft and a Mitscherlich sulphite. These data are also given in Table I.

In all cases, the time consumed at 55 deg. C. was less than forty per cent of that required at 40 deg. C., and in all cases but one (Sample 6) the saving in time was over 70 per cent. The maximum time for exhaustion required by any sample was 4.0 hours.

There appeared to be little relationship between the decrease in brightness and the range of brightness involved. The smallest loss—0.5 per cent—and the greatest loss—1.0 per cent—occurred at intermediate brightness positions.

In order to subject the modified temperature conditions to further tests, the Pulping Class at the Institute followed this modification in all bleach requirement determinations for two successive years. There appeared to be no sacrifice in accuracy; in many cases, the experimental errors in the larger scale bleaching compensated for the temperature error in the test method; and the saving in time was a great advantage. The method appeared to apply equally well to sulphite, soda, or chlorinated kraft pulps. No attempt was made to apply it directly to hard bleaching pulps. In such cases, the permanganate number determinations were used as a basis for the amounts of chlorine to be added; the bleach requirement of the chlorinated and alkali extracted pulps was then determined.

TABLE I.—BRIGHTNESS AND BLEACHING TIME vs. TEMPERATURE

Sample	Bleaching temperature deg. C.	Time to practical exhaustion, hr.	Bleach used %	Brightness %
T1A—Spruce sulphite.....	40	16.0	13.3	78.1
	45	8.0		78.0
	50	5.5		77.7
	55	3.5		77.4
	60	2.5		76.5
T3B—Spruce sulphite.....	40	22.0	15.3	78.2
	45	10.5		78.1
	50	7.0		77.6
	55	3.5		77.4
	60	3.0		75.8
10—Spruce sulphite.....	40	12.5	17.0	71.8
	50	6.5		71.2
	55	3.75		70.9
11—Spruce sulphite.....	40	10.5	33.0	77.5
	50	5.75		76.7
	55	2.75		76.5
12—Pine kraft, semibleached	40	11.75	6.0	71.4
	50	6.25		71.1
	55	3.0		70.9
6—Spruce sulphite.....	40	10.25	17.0	70.6
	50	5.5		70.2
	55	4.0		70.0
1—Spruce sulphite, Mitscherlich	40	11.25	13.0	74.4
	50	6.0		73.7
	55	3.25		73.4

Conclusions

In the method employed for determining the bleach requirement of pulp, increasing the bleach temperature from 40 to 55 deg. C. effects a large saving in the time required for the determination.

As compared with the brightness obtainable at 40 deg. C., the brightness obtained at 55 deg. C. is from 0.5 to 1.0 per cent lower.

Proposed Method for Determining the Bleach Requirement of Pulp

This method is designed to determine directly the amount of calcium hypochlorite bleaching agent necessary to bring a pulp to a selected standard degree of brightness. It is applicable to all types of pulps which can be bleached with calcium hypochlorite. Brightness is here defined as the percentage reflectance, as determined by the General Electric reflection meter, using the no. 1 filter.

This procedure is an adaptation of Institute Method 409 which in turn is based on the method of Seborg *(4)*.

Apparatus

(1) Five quart-size fruit jars with screw-type covers
(2) Small motor-driven stirrer with glass or stainless steel shaft and impeller
(3) Water bath with thermostatic control capable of maintaining a temperature of 55 ± 1 deg. C.
(4) Sheetmaking equipment as described in TAPPI Standard T 205 m-36
(5) General Electric reflection meter *(2)*

Reagent

The reagent used is a clear solution of bleaching powder (calcium hypochlorite) of known available chlorine content. Before its concentration is determined, allow the liquor to stand until clear. Decant the clear liquor into a clean bottle and add a few small lumps of lime (CaO). This assures the saturation of the liquor with calcium hydroxide ($Ca(OH)_2$) and stabilizes to a large extent the concentration of available chlorine. Keep the bleach liquor in a stoppered bottle and out of contact with air and light as far as possible.

Test Specimen

The test specimen shall consist of a representative amount of pulp of known moisture content, of uniform consistency, free from lumps, and in a condition in which it will disintegrate satisfactorily in water. Determine the moisture content by drying a representative portion of the specimen to constant weight at 105 deg. C. Do not use the dried portions during the bleaching procedure.

Procedure

Weigh out 5 portions of the pulp, each equivalent to 10 ± 0.1 g. of moisture-free pulp, and treat each as described with one of a series of selected amounts of the bleach solution above and below the estimated requirement or bleach ratio. For example, if the pulp is expected to have a bleach requirement of 10 per cent, then 6, 8, 10, 12, and 14 per cent of bleach powder are the proper amounts to use; for a 20 per cent bleach requirement, use 15, 17.5, 20, 22.5, and 25 per cent of bleach; and for 30 per cent bleach requirement, use 20, 25, 30, 35, and 40 per cent of bleach, respectively.

Place each weighed portion of the pulp in a 1-qt. jar, mix thoroughly by means of a small, high speed stirrer with enough warm distilled water to permit dilution to a consistency of 1.24 to 1.26 per cent after addition of the bleach liquor. Accurately measure the calculated amount of bleach liquor, dilute with warm water to the volume necessary to give the required consistency and thoroughly mix it into the pulp suspension. Then cover the jar loosely and place in a water bath thermostatically controlled to 55 ± 1 deg. C. Allow the bleaching to continue with occasional manual agitation until a drop of the liquor gives a barely perceptible blue color with starch iodide paper.

Dilute the bleached pulp to 1 liter in a graduate. Mix thoroughly and discard 500 cc. of the suspension. Wash the remainder thoroughly on a Büchner funnel and dilute to 2 liters. From this suspension form 2 sheets, each using 800 cc. of the stock. Disregarding the material lost during bleaching, the moisture-free weight of these sheets will be 2 g., and the moisture-free basis weight (when the standard sheet machine is used) will be approximately 100 g. per sq. m., or 71 lb. (25x40—500). One sheet is used for visual comparison; the brightness of the other sheet is determined by means of the reflection meter.

Prepare sheets according to TAPPI Standard T 205 m-36 with these modifications: To facilitate the taking of brightness readings on all sheets in a comparable direction, draw a horizontal line on each sheet with an indelible pencil before couching. In couching the sheet from the wire, place a sheet of hard filter paper on the pulp sheet, then place the blotters over the filter paper in the prescribed manner, and follow the regular couching procedure. Keep the filter paper in contact with the sheet during the pressing and drying.

Use distilled water in the bleaching, washing, and sheet forming operations.

To prepare the sheets for reading brightness, cut the sheets into tabs 2½ in. by 1 in., care being taken to have all the tabs lined up in the same direction with the glossy sides facing the same way. For taking the readings, place the pack of tabs over the sample opening with the line on the sheet parallel to the long axis of the panel of the instrument and the glossy sides of the sheets away from the opening. Take a reading in this position and another reading after the pack of tabs has been rotated clockwise through 90 deg. Take 5 readings on 5 different tabs in both directions, all readings being taken on the dull surface. Average the 10 readings taken for the brightness value to be reported.

The bleach requirement is the interpolated percentage of bleach which would give a brightness of 75. (For control purposes, any other brightness may be adopted if desired.)

If greater precision is desired, repeat the test on another series of 5 portions of the pulp, using amounts of the bleach liquor corresponding to approximately 1 and 2 per cent of bleach above and below the bleach requirement found by the first test. For example, if the bleach requirement was found to be 20 per cent, use bleach liquor corresponding to 18, 19, 20, 21, and 22 per cent of bleach, respectively.

Report

Report the bleach requirement for a brightness of 75 to the nearest percentage, expressed on the basis of moisture-free pulp and of standard bleaching powder containing 35 per cent available chlorine.

It is desirable also to report the various amounts of bleach used and the brightness of the corresponding sheets.

Precision

The percentage bleach requirement to obtain a definite degree of brightness should not vary in duplicate tests by more than 1 per cent at 15 per cent bleach requirement, nor by more than 2 per cent at 35 per cent bleach requirement.

Relation to the Actual Bleach Requirement

The actual amount of bleach required by a pulp in a given commercial bleaching process may differ somewhat from that determined by this method because of process losses, differences in consistency, difference in water, and other factors. The correction to be applied for a given mill installation may be calculated by comparative tests against actual practice.

Acknowledgment

The author wishes to express his appreciation to Tilford Collins, Alfred Graef, and Robert Hinkel who performed the experimental work involved in the temperature studies.

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Imports of Paper and Paper Making Stock

Giving Manifests of New York, Boston, Philadelphia and Other Ports of Newsprint, Wrapping, Writing, Coated, Blotting, Tissue, Strawboard, Wallboard, Cigarette Papers, Sulphite, Kraft and Ground Wood Pulp.

Effective September 30, 1939, under Treasury Decision 49,970, all publications, exchanges and trade associations, were denied access to import manifests at the New York Customs House. The Paper Trade Journal and other interested parties have vigorously protested this ruling, and as soon as the order of the Treasury Department is modified or rescinded, full publication of all manifests will be resumed in these columns. In the interim, the Paper Trade Journal is making every possible effort to gather all available information from manifests, at various outside sources.

NEW YORK IMPORTS

WEEK ENDING AUGUST 3, 1940

SUMMARY

Newsprint .....1,022 rolls
Miscellaneous paper .....27 cs.

NEWSPRINT

International Paper Co., ——, Gatineau, 285 rolls.
H. G. Craig Co., Inc., ——, Donnacona, 372 rolls.
International Paper Co., ——, Donnacona, 365 rolls.

MISCELLANEOUS PAPER

Remington Rand, Inc., ——, Yokohama, 7 cs.
——, ——, Kobe, 20 cs.

RAGS, BAGGINGS, ETC.

New England Waste Co., ——, Bombay, 101 bls. cotton waste.
Schimmel Trading Corp., ——, Bombay, 200 bls. cotton waste.
Camden Fibre Mills, ——, Bombay, 300 bls. cotton waste.

OLD ROPE

E. J. Keller Co., Inc., ——, Algiers, 57 pkgs.

CASEIN

A Hurst & Co., ——, Buenos Aires, 84 bags, 5,040 kilos.
T. M. Duche & Sons, Inc., ——, Buenos Aires, 834 bags, 50,040 kilos.
American British Chemical Supplies, ——, Buenos Aires, 2,020 bags, 100,000 kilos.

ALBANY IMPORTS

WEEK ENDING AUGUST 3, 1940

Halifax Power & Pulp Co., ——, Sheet Harbor, 8,976 bls. mechanically ground wood pulp, 2,005 tons.

BAYONNE IMPORTS

WEEK ENDING AUGUST 3, 1940

Halifax Power & Pulp Co., ——, Sheet Harbor, 2,194 bls. mechanically ground wood pulp, 490 tons.

BOSTON IMPORTS

WEEK ENDING AUGUST 3, 1940

Castle & Overton, Inc., ——, Buenos Aires, 46 bls. glue-stock, 40 bls. rags.

PHILADELPHIA IMPORTS

WEEK ENDING AUGUST 3, 1940

National City Bank, ——, Buenos Aires, 800 bags casein.

NORFOLK IMPORTS

WEEK ENDING AUGUST 3, 1940

A. Hurst & Co., ——, Buenos Aires, 334 bags casein, 20,040 kilos.

LOS ANGELES IMPORTS

WEEK ENDING AUGUST 3, 1940

——, ——, Yokohama, 10 pkgs hanging paper, 1 cs. writing paper.
——, ——, Tokyo, 1 cs. writing paper.
——, ——, Yokohama, 4 pkgs. hanging paper.
——, ——, Yokohama, 1 cs. surface coated paper.

New "Colorgated" Packaging

A new product, known as Colorgated, a trademarked product for packaging and wrapping has just been announced by the United Container Company, Philadelphia.

With the new material up to six waterproof colors can be printed in a single press run, where previously only two colors could be printed in a single sheet. The patterns and finishes obtained are the equal of many fancy papers, though they are printed direct, not pasted on.

Flexible or rigid, A or B flute, single or double-faced, Colorgated can be made in any weight with either jute or kraft liners. The material comes in all colors and, in addition to the line of Christmas patterns which United has already developed, there will be a series of all-year round patterns. Custom and semi-custom designs will be available.

An extensive promotional campaign has already gotten under way to introduce Colorgated to manufacturers, retailers, and consumers. This drive will affect the paper field in several ways.

United's decision to sell Colorgated to other box makers and corrugators in sheet or roll-form for final fabrication will mean that these jobbers who supply the box makers will have a definite interest in the program. Already appointed jobbers in the New York area are the Salwen Paper Company and the Empire Paper Corporation.

Another point of interest to the paper field is the company's plan to sell flexible Colorgated and colorgated boxes in Christmas patterns through stationery stores and departments.

Merritt J. Davis Appointed

Philip B. Fleming, administrator of the Wage and Hour Division of the U. S. Department of Labor announces the resignation of Ferdinand R. White from Industry Committee No. 14 for the Converted Paper Products Industry and announces the appointment in his stead as representative for the employers on this committee of Merritt J. Davis of Wellsburg, W. Va.

Paper Salesman on Mill Tour

[FROM OUR REGULAR CORRESPONDENT]

PHILADELPHIA, Pa., August 5, 1940—James T. Stewart, salesman for the Hooper Paper and Twine Company, has just returned from an extensive trip to paper mills in the west. Mr. Stewart summarized the highlights as follows: "My first call was on the Fox Paper Company in Cincinnati who, aside from specialties is well known for some of its other coarse paper items. I then visited the Beveridge Paper Mills in Indianapolis, one of the country's leading manufacturers of railroad and bristol, and found them running to capacity six days a week.

"After this I had a social interlude in Chicago, thence to Peshtigo, Wis., the home of Badger Paper Mills who make our watermarked and unwatermarked sulphites and mimeos. This is one of the most modern mills; they seem to turn back into modern improvements a great percentage of their profit yearly. For instance, the entire pulp mill is tile-lined. Also interesting to note was the fact that they actually have on hand enough pulpwood to fulfill their requirements for the next sixteen months and have contracted with neighboring farmers for wood for years to come. This puts them in a secure position in face of the currently unsettled importations of pulp. I had the pleasure here to meet two representatives of two other distributing houses for Badger, one from the Graham Paper Company, Chicago, and the other from the Ris Paper Company, New York.

I then journeyed to Whiting Plover Mill in Stevens Point, Wis., which mill makes our permanized line of rag papers. Their finishing room, where the Keebord line of typewriting papers is converted, is completely air conditioned and walled in with glass bricks, which facilities make for ideal conditions in this type of work. My next stop was Kalamazoo, Mich., where I visited Allied Mills, whose six machines have a large capacity for turning out M.F. and enameled book. I found them running five 24-hour days per week. They are making great steps in the application of enamel by roller and should in a very short space of time overcome the difficulties presented by the brush application.

Board Production Increases

Monthly statistics on paperboard for June 1940 released by Director William L. Austin, Bureau of the Census, Department of Commerce and compiled from data furnished by the National Paperboard Association from reports of members, and by manufacturers reporting direct to the Bureau amounted to 440,725 short tons, or 77.8 per cent of the rated capacity of the mills reporting. The ratio of inch hours of operation to rated capacity for June 1940 was 76.7 per cent, as compared with 74.9 per cent for May 1940, 65.6 per cent for June 1939, and 55.8 per cent for June 1938.

Alliance Paper Mills Changes

A. E. H. Fair, manager of the Merriton Division of the Alliance Paper Mills, Ltd., has been appointed manager of the Cornwall Division of the Howard Smith Paper Mills, replacing D. B. Millidge. Mr. Millidge will come to Merriton as vice president of the Alliance Paper Mills, Ltd., and will take over Mr. Fair's duties at that place.

N.P.T.A. Exhibit of Paper

Word has been received from the N.P.T.A. office that reservations for exhibit rooms during their Semi-Annual Convention at the Stevens Hotel Chicago, September 23-25, have been coming in at an encouraging rate. To date applications have been received from the following concerns:

Ajax Box Company, Chicago, Ill.; Victoria Paper Mills Company, Fulton, N. Y.; Self-Locking Carton Company, Chicago, Ill.; Crystal Tissue Company, Middletown, Ohio; Lily-Tulip Cup Corporation, New York, N. Y.; Hoberg Paper Mills, Green Bay, Wis.; Continental Bag Specialties Corp., New York, N. Y.; The Hooven & Allison Company, Xenia, Ohio; Fort Howard Paper Company, Green Bay, Wis.; Cleveland Mill and Power Company, Lawndale, N. C.; Better Packages, Inc., Shelton, Conn.; Wisconsin Tissue Mills, Menasha, Wis.; Midland Products, Inc., St. Louis, Mo.; Orchard Paper Company, St. Louis, Mo.; Rexford Paper Company, Milwaukee, Wis.; Nekoosa-Edwards Paper Company, Fort Edwards, Wis.; Sealright Company, Inc., Fulton, N. Y.; Sherman Paper Products Corporation, Newton Upper Falls, Mass.; National Soda Straw Company, Chicago, Ill.; Sutherland Paper Company, Kalamazoo, Mich.; and McLaurin-Jones Company, Brookfield, Mass.

The drawing for rooms will be conducted at the N.P.T.A. office on Friday, August 16, and concerns desiring to take advantage of this opportunity to display their products are urged to send in their applications before the 16th. Applications received after that date will be assigned the best remaining space in the order of their receipt.

Swedish Newsprint Exports Decline

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., August 7, 1940—Production and exportation of Swedish newsprint registered an appreciable decline in the first quarter of the current year as compared with the corresponding 1939 period, according to a report from Commercial Attache George C. Howard, Stockholm. Aggregate output of this item in the January-March period of 1940 amounted to 59,185 metric tons, with exports totaling 34,434 metric tons. The comparative figures for 1939 were 65,068 metric tons and 43,248 metric tons respectively.

Exports to the United States, the largest outlet for Swedish newsprint in the first quarter of 1939 declined to 2,476 metric tons as against 11,385 metric tons in the earlier period. Shipments to the British market totaling 8,043 metric tons, were on approximately the same level as in the first quarter of 1939, while exports to Argentina rose by 1,000 metric tons to a total of 8,223 metric tons.

To Use Secondary Head Boxes

The Hummel-Ross Fibre Corporation announces that it has consummated negotiations with Sir Herbert Gepp, managing director of Australian Paper Manufacturers, Ltd., of Melbourne, Australia, for the sale of plans and technical information for two secondary head boxes. The first head box will be installed on the No. 2 machine at the Fairfield mill and the second will probably be installed on the No. 3 machine at the Botany mill.

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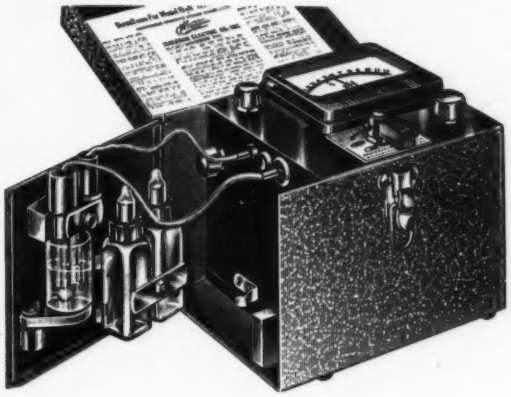

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New York Paper and Pulp Market Review

Markets Easier This Week, With Kraft Paper Shipments High and Advances In Prices On Some Grades of Wood Pulp—Shirt Cuttings and No. 1 Roofing Rags Off—No. 1 Mixed Paper Lower.

Office of the PAPER TRADE JOURNAL,
Wednesday, August 7, 1940.

Although some falling off in demand has occurred during the last two weeks and the paper and pulp markets are easier, reports from many manufacturers' representatives, jobbers, and general paper merchants, indicate that sales volume is moderate to good in many lines. Demand from the printing trades continues below expectations. The current decline in activity in the wholesale paper market is generally viewed in the trade as more or less seasonal with the prospect favorable for expanding sales next month.

The index of general business activity rose to 101.7 per cent for the week ended July 27, from 101.1 per cent for the preceding week, compared with 91.5 per cent for the corresponding week last year. Four components comprising the index showed losses from the previous week, including paper.

Paper production of 244 mills for the week ended July 27 was estimated at 81.7 per cent, compared with 80.1 per cent for 1939, with 77.1 per cent for 1938, with 88.9 per cent for 1937, and with 81.0 per cent for the corresponding week for 1936.

Paper board production for the week ended July 27 was 74.0 per cent, compared with 70.0 per cent for 1939, with 64.0 per cent for 1938, with 73.0 per cent for 1937, and with 74.0 per cent for the like week for 1936.

The wholesale paper market, while reflecting some decline in sales volume, continues active. Exports of some grades continues high, particularly in Southern kraft wrapping paper. Many grades of sulphite papers, including bonds, are reported in good demand. Sales of some groundwood grades continue at a good level. The current demand for kraft paper, while below the peak of the year, continues high, with current shipments about 15 per cent above the like period last year.

No important price changes in any grade of paper has been reported during the current week. The paper market is firm but as the industry as a whole is flatly opposed to any undue rise in the price level, further price increases are expected to reflect only actual changes in basic costs, with a minimum of inflation brought about through large-scale buying for inventory account.

Mechanical Pulp

The demand for mechanical pulp continues at a high level, though this market is reported a little easier at this date. Prices are very firm and the contract delivered quotations on No. 1 domestic and Canadian mechanical pulp have been advanced and are currently quoted at from $42 to $46 per ton.

Chemical Pulp

No actual shortage of chemical pulp has been reported, although a few mills are said to have scant supplies of pulp on hand. With the exception of unbleached sulphite, reliable sources appear to agree that there is no immediate danger of a shortage of chemical pulp. In some quarters of the trade the present supply on dock is estimated at 200,000 tons, with the industry consuming about 40,000 tons per month at this date.

Contract prices on some grades of kraft pulp have been advanced this week. Bleached kraft is currently quoted at from 4.12½ to 4.50 and No. 1 kraft pulp at from 3.40 to 3.60. The chemical pulp market is definitely easier this week, with tonnage not now moving at the high spot prices of a few weeks ago.

Rags

Trading in the rag market continues largely limited to a few grades. This is commonly the situation in midsummer. Prices are generally easier with lower quotations on some grades, such as No. 1 new white shirt cuttings, currently quoted at from 6.75 to 7.00, and No. 1 roofing rags, currently quoted at from .80 to .85.

Old Rope and Bagging

The market position of old Manila rope is strong, due to the strictly limited supply of imported Manila and light domestic supply at this date. Prices are firm and unchanged.

Trading continues on a limited scale in old bagging. Prices hold firm and unchanged.

Old Waste Paper

The old waste paper market is reported as easier at this date. Lower prices on some grades of paper stock are reported. Overissue magazines are currently quoted at from .90 to 1.00; corrugated, at from .60 to .65, and No. 1 mixed paper at from .45 to .50

Twine

No important change in the twine market has been reported this week. Supplies of imported fibers appear ample. Imports of sisal and jute into the United States have nearly doubled during the last five months, compared with a like period last year.

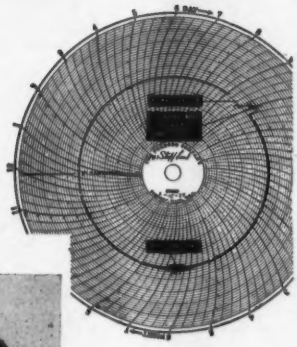
J. P. Burke to Speak at Fort Edward

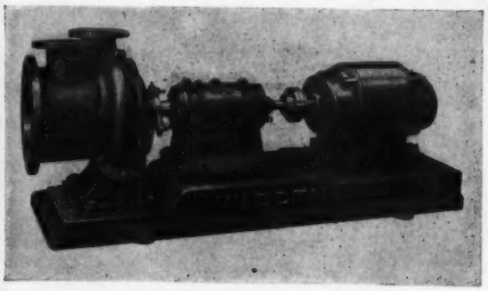
[FROM OUR REGULAR CORRESPONDENT]

FORT EDWARD, N. Y., August 5, 1940—The principal address at the Labor Day celebration here will be delivered by John P. Burke, president of the International Brotherhood of Pulp, Sulphite and Paper Mill Workers. Organized labor is to play the principal part in the celebration. From this place, the International Brotherhood of Pulp, Sulphite and Paper Mill Workers, International Brotherhood of Papermakers, and the International Brotherhood of Firemen and Oilers will have practically their entire membership in the huge parade. Locals from many sections of the state will also be represented. A big fireworks display will culminate the program.

STUFF BOX LEVEL CONSTANT

to a fraction of an inch





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*Made in leading mill. Name on request.

It's a fact, proved by scores of service-records in leading mills, that Warren centrifugal machine chest pumps do an unusual job, and do it well. Flow is smooth, without pulsation. Regulation is simple, accurate. Discharge valve can be closed *safely*. Clean stock is assured: no pockets to hold old stock. Maintenance is a drop in the bucket. No plunger stuffing boxes to pack, no plungers to be turned or replaced . . . Make it a point to check a Warren engineer on the savings these pumps can make in your mill. Detailed facts on request.

WARREN PUMPS

WARREN STEAM PUMP CO., INC., WARREN, MASS. 7660

"NON-USERS ARE THE LOSERS"

TENAX FELTS

FINISH AND TRIM

THIS CHANGING WORLD

Frequently now it becomes necessary for American papermakers to take on extra and unusual requirements. This is the topic most discussed when technical men and superintendents get together.

TENAX FELTS and their makers are cooperating. By keeping abreast of conditions. By constant tests to meet those conditions promptly and efficiently and economically.

"Non-Users Are The Losers"

LOCKPORT FELT COMPANY

NEWFANE, N. Y.–U. S. A.

MISCELLANEOUS MARKETS

Office of the PAPER TRADE JOURNAL,
Wednesday, August 7, 1940.

BLANC FIXE—Prices on blanc fixe are firm and unchanged and conform to prevailing market levels. The pulp is currently quoted at $35 per ton, in barrels, at works; the powder is currently quoted at $50 per ton, f.o.b., works.

BLEACHING POWDER—Quotations on bleaching powder are firm. Demand reported fair for the week. Bleaching powder is currently quoted at $2 per 100 pounds, in drums, at works.

CASEIN—Prices on casein are firm and unchanged for the week. Standard domestic casein, 20-30 mesh, is currently quoted at from 13 to 13½ cents per pound; 80-100 mesh, at from 14 to 15 cents per pound. All prices in bags, car lots. Argentina casein, 20-30 mesh, is currently offered at from 11½ to 12½ cents per pound. The current quotation of 15 cents per pound on French casein is nominal.

CAUSTIC SODA—Quotations on caustic soda are firm and continue unchanged at prevailing market prices. Demand continues good. Solid caustic soda is currently quoted at $2.30 per 100 pounds; flake and ground at $2.70 per 100 pounds, in drums, at works.

CHINA CLAY—Prices on china clay are firm and conform to prevailing market levels. Domestic filler clay is currently quoted at from $7 to $15 per ton; coating clay at from $11 to $22 per ton, at mines. Imported clay is currently offered at from $13 to $25 per ton, ship side.

CHLORINE—Quotations on chlorine are firm and unchanged. Demand reported good for the week. Chlorine is currently quoted at $1.75 per 100 pounds, in single-unit tank cars, f.o.b., works.

ROSIN—The rosin market is reported fairly firm for the week. "G" gum rosin is currently quoted at $1.51 per 100 pounds, in barrels, Savannah. "FF" wood rosin is currently quoted at $1.48 per 100 pounds, in barrels, New York. Seventy per cent gum rosin size is currently offered at $2.45 per 100 pounds, f.o.b., shipping point.

SALT CAKE—Prices on salt cake are firm and nominal. Demand good. Domestic salt cake is currently quoted at $17 per ton, in bulk; chrome cake at $16 per ton. All prices in car lots, f.o.b., shipping point. The quotation of $20 per ton on imported salt cake is nominal.

SODA ASH—Quotations on soda ash are firm and continue to conform to prevailing market levels. Demand reported moderate for the week. Prices on soda ash in car lots, per 100 pounds, are as follows: in bulk, $.90; in paper bags, $1.05; and in barrels, $1.35.

STARCH—Prices on corn starch are firm and continue unchanged at prevailing market levels. Pearl is currently quoted at $2.90 per 100 pounds; powdered starch at $3 per 100 pounds. All prices in bags, car lots, f.o.b., Chicago.

SULPHATE OF ALUMINA—Quotations on sulphate of alumina are firm. Demand reported moderate. The commercial grades are currently quoted at $1.15; iron free at $1.60 per 100 pounds. All prices in bags, car lots, f.o.b., works.

SULPHUR—Prices on sulphur are firm and conform to prevailing market levels. Annual contracts are currently quoted at $16 per long ton, f.o.b., mines. Spot and nearby car lots are quoted at $19 per ton.

TALC—Quotations on talc are firm and continue unchanged at prevailing market prices. Domestic talc is currently quoted at from $15 to $21 per ton, at mines. Quotations on imported talc are nominal.

MARKET QUOTATIONS

Paper

(Delivered New York)

News, per ton—			
Roll, contract	$50.00	@	—
Sheets	58.00	"	—
Kraft—per cwt.—Delivered Zone A			
Northern, Extra Quality	$5.25	@	$5.75
Superstandard	4.87½	"	5.25
Northern Standard Wrapping	4.37½	"	4.62½
Standard Wrapping	4.25	"	—
Tissues—Per Ream—Carlots			
White No. 1	.97½	"	—
White No. 1 M. G.	.95	"	—
White No. 1½	.80	"	—
White No. 2	.75	"	—
Anti-Tarnish M. G.	.80	"	—
Colored	.85	"	—
Kraft	.87½	"	—
Manila	.77½	"	—
Unbl. Toilet, 1 M.	3.75	"	—
Bleached Toilet	5.26	"	—
Paper Towels, Per Case—			
Unbleached, Jr.	2.10	"	—
Bleached, Jr.	3.60	"	—
Manila—per cwt.—C. l. l. a.			
No. 1 Jute	8.25	@	10.25
No. 1 Manila Wrapping, 35 lb.	5.25	"	—
No. 2 Manila Wrapping, 35 lb.	5.00	"	—
Boards, per ton—			
News	35.00	@	40.00
Chip	35.00	"	40.00
Sgl. Mla. Ll. Chip	55.00	"	57.00
White Pat. Coated	67.00	"	70.00
Kraft Liners	55.00	"	—
Binders Boards	73.00	"	80.00

The following are representative of distributors' resale prices:

Rag Content Bonds and Ledgers—
White, Assorted Items,
Delivered in Zone 1:

	Bonds		Ledgers	
100% Rag Ext. No. 1	$39.10 @	$46.00	$40.25 @	$47.25
100% Rag	31.05 "	36.50	32.20 "	37.75
85% Rag	.... "	....	29.90 "	35.00
75% Rag	23.60 "	27.75	24.75 "	29.00
65% Rag	.... "	....	21.65 "	26.25
50% Rag	17.55 "	21.50	18.70 "	22.75
25% Rag	14.65 "	17.75	15.80 "	19.25

Colors at $1.00 cwt. extra.

Sulphite Bonds and Ledgers—
White, Assorted Items,
Delivered in Zone 1:

	Bonds		Ledgers	
No. 1	$8.95 @	$11.00	$10.10 @	$12.25
No. 2	8.05 "	9.75	9.25 "	11.25
No. 3	7.60 "	9.25	8.50 "	10.75
No. 4	7.30 "	9.00	8.50 "	10.25

Colors $1.00 cwt. extra.

Free Sheet Book Papers—
White, Cased Paper,

Delivered in Zone 1:

No. 1 Glossy Coated	$11.90 @		$13.50
No. 2 Glossy Coated	10.35 "		11.75
No. 3 Glossy Coated	9.55 "		11.00
No. 4 Glossy Coated	9.15 "		10.50
No. 1 Antique (watermarked)	8.35 "		9.50
No. 2 Offset	7.70 "		9.00
A Grade E. F.	7.50 "		8.75
A Grade S. & S. C.	7.75 "		9.00
B Grade E. F.	6.93 "		8.00
B Grade S. & S. C.	7.20 "		8.25
C Grade E. F.	6.65 "		7.75
C Grade S. & S. C.	6.90 "		8.00
D Grade E. F.	6.40 "		7.50
D Grade S. & S. C.	6.65 "		7.75

Ivory & India at $.50 cwt. extra.

Mechanical Pulp

(On Dock, Atlantic Ports)

No. 1 Imported—			
Moist	Nominal		
Dry	Nominal		
(Delivered)			
No. 1 Domestic and Canadian	42.00	@	46.00

Chemical Pulp

(On Dock, Atlantic, Gulf and West Coast Ports)

Bleached Sulphite (Domestic and Foreign)—			
Prime Bleached Sulphite	3.72½	@	4.50
Prime Qualities—			
Easy Bleaching Sulphite	3.17½	"	3.75
Strong Unbleached Sulphite	3.17½	"	3.75
(On Dock, Atlantic Ports)			
Kraft Bleached	4.12½	"	4.50
Kraft Light & Strong	3.50	"	3.75
Kraft No. 1	3.40	"	3.60
(F. o. b. Pulp Mill)			
Kraft Domestic and Canadian	3.25	"	3.50
(Delivered)			
Soda Bleached	2.90	"	3.30

Add 60 cents per short ton, dock charges for Albany; $2.50 for Lake Ports East and $3.50 for Lake Ports West of Mackinac Straits.

Domestic Rags

New Rags

(Prices to Mill f. o. b. N. Y.)

Shirt Cuttings—			
New White, No. 1	6.75	@	7.00
Silesias No. 1	4.60	"	4.75
New Unbleached	6.75	"	7.00
Blue Overall	4.50	"	4.75
Fancy	3.25	"	3.50
Washables	2.00	"	2.15
Mixed Khaki Cuttings	2.75	"	3.00
O. D. Khaki Cuttings	3.15	"	3.35

Old Rags

White, No. 1—			
Repacked	3.25	"	3.50
Miscellaneous	2.75	"	3.00
White, No. 2—			
Repacked	2.50	"	2.75
Miscellaneous	2.00	"	2.25
Thirds and Blues—			
Repacked	2.00	"	2.25
Miscellaneous	1.75	"	1.90
Roofing Rags—			
No. 1	1.10	"	1.15
No. 2	.80	"	.85
No. 3 (bagging)	.90	"	1.00
No. 4	.60	"	.65
No. 5A	.60	"	.65

Foreign Rags

All prices nominal

New Rags

New Dark Cuttings	2.25	@	2.40
New Mixed Cuttings	2.00	"	2.20
New Light Silesias	5.50	"	5.75
Light Flannelettes	5.50	"	5.75
New White Cuttings	7.00	"	7.50
New Light Oxford	4.00	"	4.50
New Light Prints	3.00	"	3.25

Old Rags

No. 1 White Linens	7.50	"	8.50
No. 2 White Linens	6.50	"	7.50
No. 3 White Linens	4.50	"	—

MASTER CRAFTSMAN

AT SHRINKING ORR FELTS

On the most modern felt fulling mill in the world, this craftsman is shrinking an Orr Felt to the correct size. A standard operation in felt manufacture, this process requires eagle-eyed supervision, for shrinking a felt as much as one-half in size is a task where a mistake means ruin.

Only long time operators with years of apprenticeship are permitted to handle the shrinking operation—one of the reasons Orr Felts always meet exact specifications for quality and size. Next time, specify Orr Felts, get the benefit of long felt life and maximum water removal.

Orr Felt & Blanket Co.
PIQUA, OHIO

COMPLETE FACILITIES AVAILABLE

You are invited to use our

TECHNICAL SERVICE

on

STARCHES
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STARCH
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For further information write

CORN PRODUCTS SALES CO.
17 BATTERY PLACE
NEW YORK CITY

No. 4 White Linens.	2.25	@	3.25
No. 1 White Cotton.	4.25	"	4.75
No. 2 White Cotton.	3.25	"	3.75
No. 3 White Cotton.	2.50	"	3.00
No. 4 White Cotton.	1.90	"	2.20
Extra Light Prints..	2.00	"	2.40
Ord. Light Prints...	1.75	"	2.15
Med. Light Prints...	1.55	"	1.95
Dutch Blue Cottons.	2.25	"	2.50
French Blue Linens..	3.00	"	—
Checks and Blues...	2.00	"	—
Linsey Garments....	1.90	"	2.00
Dark Cottons.....	1.50	"	1.60
Old Shopperies.....	1.30	"	1.45
New Shopperies.....	1.45	"	1.50
French Blues.....	2.25	"	2.50

Old Rope and Bagging

(Prices to Mill, f. o. b. N. Y.)

Gunny No. 1—			
Foreign	2.75	@	3.00
Domestic	2.50	"	2.75
Wool Tares, light...	2.00	"	2.25
Wool Tares, heavy..	2.12½	"	2.25
Bright Bagging.....	2.25	"	2.50
Manila Rope—			
Foreign	4.75	"	5.00
Domestic	4.50	"	4.75
Jute Threads.....	2.62½	"	2.75
Sisal Strings.....	2.10	"	2.35
Mixed Strings.....	1.10	"	1.20

Old Waste Papers

(F. o. b. New York)

Shavings—			
White Envelope Cuttings	3.10	@	3.25
Ordinary Hard White No. 1....	2.25	@	2.50
Soft White No. 1..	1.80	"	1.90
Soft White Extra..	2.50	"	2.60
Flat Stock—			
Stitchless	1.10	"	1.25
Overissue Mag.....	.90	"	1.00
Solid Flat Book....	1.02½	"	1.07½
Crumbled No 1...	.70	"	.75
Ledger White Stock.	2.00	"	2.15
Ledger Stock Colored	1.50	"	1.60
Manila—			
New Env. Cut....	1.70	"	1.80
New Cuttings....	1.30	"	1.40
Old Kraft Machine Compressed bales..	1.75	"	1.85
News—			
No. 1 White News	1.75	"	1.90
Strictly Overissue.	.70	"	.75
Strictly Folded....	.60	"	.65
Corrugated	.60	"	.65
No. 1 Mixed Paper...	.45	"	.50

Twines

(F. o. b. Mill)

(Soft Fiber)

Coarse Polished—			
India	.19½	@	—
White Hemp.....	.19½	"	—
Fine Polished—			
Fine India.....	.24	"	—
Unpolished—			
Box	.15	"	—
Paper Makers.....	.15¾	"	—
Tube Rope.....	.17	"	—
Wall Paper.....	.16	"	—
Wrapping	.18¾	"	—
Soft Fiber Rope...	.16¾	"	—
Cotton	.21½	"	—

(Hard Fiber)

Medium Java.....	.20	"	—
Mex. Sisal.....	.17	"	—
Manila	.24¾	"	—

PHILADELPHIA

Domestic Rags (New)

(Price to Mill, f.o.b. Phila.)

Shirt Cuttings—			
New White No. 1.	.07¼	@	.07½
New White No. 2.	.04	"	.04½
Light Silesias.....	—	"	.04½
Silesias, No. 1....	—	"	.04½
Black Silesias, soft	—	"	.03¾
New Unbleached...	.06	"	.06¼
Washable, No. 1..	—	"	.04
Blue Overall.....	.04½	"	.05
Cottons—According to grades—			
Washable No. 2...	—	"	.01¾
New Blue	—	"	.01¾
Fancy Percales....	—	"	.03
New Black Soft....	—	"	.04
New Light Seconds	.04½	"	.05
New Dark Seconds	—	"	1.55
Khaki Cuttings—			
No. 1 O. D.....	.03½	"	.03¾
No. 2 Mixed.....	.02½	"	.02½
Corduroy	—	"	.03
New Canvas.....	.05½	"	.06
New Black Mixed.	—	"	.03

Domestic Rags (Old)

White No. 1—			
Repacked	3.25	@	3.75
Miscellaneous	2.50	"	2.75
Thirds and Blues—			
Miscellaneous	1.55	"	1.65
Repacked	1.75	"	2.00
Black Stockings (Export)	3.50	"	4.00
Roofing Stock—			
Foreign No. 1....Nominal			
Domestic No. 1...	.90	"	1.00
Domestic No. 2...	—	"	.80
Roofing Bagging..	—	"	.70

Bagging

(f.o.b. Phila.)

Gunny, No. 1—			
Foreign .....Nominal			
Domestic	2.25	@	2.75
Manila Rope.....	—	"	4.50
Sisal Rope.....	1.75	"	2.00
Mixed Rope.....	.75	"	1.00
Scrap—			
No. 1.....	2.50	"	2.75
No. 2.....	1.10	"	1.15
Wool Tares, heavy..	3.50	"	3.70
No. 1 New Light Burlap	3.00	"	3.50
New Burlap Cuttings	2.00	"	2.25

Old Papers

(f.o.b. Phila.)

Shavings—			
No. 1 Hard White	2.50	@	2.55
No. 2 Hard White	2.10	"	2.15
No. 1 Soft White	2.00	"	2.10
No. 2 Soft White	1.60	"	1.75
No. 1 Mixed.....	.90	"	1.00
Solid Ledger Stock..	1.90	"	2.00
Ledger Stock, white.	1.90	"	2.00
Ledger Stock, colored	1.50	"	1.60
No. 1 Books, heavy..	.90	"	1.00
Manila Cuttings.....	1.75	"	1.80
Print Manila.....	.65	"	.70
Container Manila....	.55	"	.60
Kraft Paper.....	1.50	"	1.60
No. 1 Mixed Paper..	.40	"	.45
Straw Board Chip...	.40	"	.45
Binders Board Chip..	.40	"	.45
Corrugated Board....	.70	"	.75
Overissue News.....	.75	"	.80
Old Newspapers.....	.55	"	.60

BOSTON

Old Papers

(f.o.b. Boston)

Shavings—			
No. 1 Hard White	2.75	@	3.15
No. 1 Soft White	2.00	"	2.25
No. 2 Mixed.....	.75	"	.80
Solid Ledger Books..	1.50	"	1.75
Overissue Ledger Stock	1.75	"	2.00
Mixed Ledgers.....	.85	"	.90
No. 1 Books, heavy..	1.10	"	1.25
No. 1 Books, light..	.65	"	.75
Crumpled Stitchless Book Stock.....	.55	"	.65
Manila Env. Cuttings	1.85	"	2.00
Manila Envelope Cuttings, extra quality	2.35	"	2.60
White Blank News..	1.40	@	1.50
No. 1 Kraft.....	1.40	@	1.50
Extra No. 1 Kraft...	1.60	"	1.90
Mixed Papers.....	.40	"	.45
Print Manila.....	.50	"	.55
Container Manila...	.60	"	.70
Old Newspapers.....	.50	"	.55
Paper Wool Strings..	.95	"	1.25
Overissue News.....	1.00	"	1.10
Box Board Chips.....	.40	"	.45
Corrugated Boxes....	.60	"	.65
Kraft corrugated boxes	1.20	"	1.30
New Kraft corrugated cuttings	2.12½	"	2.25
New Kraft Cuttings.	2.00	"	2.25
Screening Wrappers	.60	"	.70

Bagging

(f.o.b.Boston)

Gunny Bagging—			
Foreign	2.75	@	—
Domestic	2.25	"	2.50
Sisal Rope.....	2.25	"	2.50
Mixed Rope.....	.85	"	1.00
Transmission Rope—			
Foreign	2.40	"	2.60
Domestic	2.25	"	2.40
Soft Jute Rope.....	3.00	"	3.25
Manila Rope—			
Foreign	4.85	"	5.25
Domestic	4.75	"	—
Jute Carpet Threads.	1.50	"	1.75
Gunny Bagging—			
Foreign	2.75	"	2.85
Domestic	2.25	"	2.50
Bleachery Burlap....	4.00	"	3.25
Scrap Burlap—			
Foreign	2.40	"	2.50
Domestic	2.50	"	—
Scrap Sisal.....	2.25	"	2.50
Scrap Sisal for Shredding	2.30	"	2.65
Wool Tares, Heavy..	2.40	"	2.50
New Burlap Cuttings	3.75	"	4.00
Aust. Wool Pouches..	3.00	"	3.15
Heavy baling bagging	2.25	"	2.40
Paper Mill Bagging..	1.75	"	2.00
No. 2 Bagging.....	.75	"	.80

Domestic Rags (New)

(F. o. b. Boston)

Shirt Cuttings—			
New Light Prints.	—	@	.03
Fancy Percales....	.04	"	.04¼
New White No. 1.	.07½	"	.07¾
New Light Flannelettes	.05	"	.05¼
Canton Flannel, Bleached	.07	"	—
Silesias No. 1	05	"	—
New Black Silesias..	3.00	"	3.25
Soft Unbleached...	.07	"	.07½
Blue Cheviots.....	.05	"	.05½
Fancy	.02	"	.02½
Washable	.02	"	.02½
Cottons—According to Grades—			
Blue Overalls.....	.04¾	"	.05
New Black, Soft..	.03	"	.03¼
Khaki Cuttings.....	.03	"	—
O. D. Khaki.....	.03	"	.03½
Corduroy	.02¾	"	.03
New Canvas.....	.06¼	"	.07¼
B. V. D. Cuttings...	.07	"	.07¼

Domestic Rags (Old)

(F. o.b. Boston)

White No. 1—			
Repacked	2.75	"	3.75
Miscellaneous	2.40	"	2.60
White No. 2—			
Repacked	1.90	"	2.00
Miscellaneous	2.00	"	2.25
Twos and Blues.....	1.50	"	2.00
Old Blue Overalls ..	1.60	"	2.00
Thirds and Blues—			
Repacked	—	"	1.25
Miscellaneous	—	"	1.00
Black Stockings.....	3.50	"	4.00
Roofing Stock—			
No. 1.....	1.00	"	1.25
No. 2.....	—	"	1.10
No. 3.....	—	"	.90

Foreign Rags

(F. o. b. Boston)

Canvas	.04¼	@	—
Dark Cottons.....(nominal)			
Dutch Blues.....(nominal)			
New Checks and Blues(nominal)			
Old Fustians.....(nominal)			
Old Linsey Garments.(nominal)			
New Silesias.....(nominal)			

CHICAGO

Waste Paper

(f.o.b. Chicago)

Shavings—			
No. 1 White Envelope cuttings....	3.15	@	—
No. 1 Hard White	2.50	"	2.65
No. 1 Soft White.	2.00	"	2.20
Ledger and Writings	.85	"	.95
Solid Books.....	.95	"	1.10
Blanks	1.50	"	1.60
Krafts	1.40	"	1.50
New Kraft Cuts.....	1.60	"	1.75
Overissue News.....	1.00	"	1.10
Old Newspapers—			
No. 1 Folded News	.70	"	.80
No. 1 Mixed Paper	.40	"	.50
Roofing Stocks—			
No. 1.....	.95	@	1.00
No. 2.....	.85	"	.90

National Letter Writing Week Prizes

Cash prizes will be awarded for best displays of stationery and posters in windows during National Letter Writing Week, October 6 to 12. All stationery retailers are eligible. Photographs of best windows will be judged in making the twelve awards.

Entries were received from near and far, even from as distant a place as Alaska, in the previous year's campaign. This year's contest offers more prizes than before. Details are described in the enclosure.

In addition to posters obtainable free from sponsoring manufacturers, dealers can also obtain lithographed window streamers in orange and black, the campaign colors.

Consumer interest in letter writing and an increase in writing paper sales are expected results from participation by dealers in the campaign.

The Paper Stationery and Tablet Manufacturers Association, Inc., 527 Fifth Avenue, New York, N. Y., is the campaign office. The following manufacturers are sponsors of the campaign: American Papeterie Company, J. C. Blair Company, Eaton Paper Corporation, George W. Fox Paper Company, Kalamazoo Stationery Company, Lakeside Central Company, Mid West Paper and Envelope Company, Montag Brothers, Inc., Novelart Manufacturing Company, Puritan Stationery Company, Sangamon Company, Southern Central Company, Springfield Photomount Company, United States Envelope Company, P. P. Kellogg & Co., Division, Marcus Ward, Inc., Wesley & Winter, Inc., Western Tablet and Stationery Company, White & Wyckoff Manufacturing Company, Arthur E. Wilson & Co.